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OFFICE OF THE LEGISLATIVE AUDITOR
STATE OF MINNESOTA

PROGRAM EVALUATION REPORT

Recycling and Waste Reduction

JANUARY 2002

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OFFICE OF THE LEGISLATIVE AUDITOR
STATE OF MINNESOTA • James Nobles, Legislative Auditor

January 18, 2002

Members
Legislative Audit Commission

In 1989, the Legislature enacted a set of laws, referred to as SCORE, that authorize grants to counties for waste reduction and recycling activities. In May 2001, the Legislative Audit Commission directed us to evaluate Minnesota's SCORE programs. Legislators were particularly interested in how counties have used SCORE grants and whether SCORE has accomplished what it set out to do.

Overall, Minnesota's SCORE programs have been reasonably successful. Counties have implemented an array of programs that SCORE was intended to promote, and Minnesota residents and businesses currently recycle about 40 percent of the waste they generate. In recent years, though, waste generation has outpaced population growth, and much of what Minnesotans are still throwing away could be diverted from the waste stream. State SCORE grants are an important revenue source, each year accounting for about one-third of county funding for recycling and other SCORE programs. About two-thirds of SCORE expenditures are for recycling and household hazardous waste programs.

To help gauge progress and target future efforts, we recommend that the Minnesota Office of Environmental Assistance conduct periodic waste composition studies. To help counties identify strategies that would work best for them, we also recommend that the office emphasize evaluation of specific recycling and waste reduction practices and increase efforts to disseminate research results.

This report was researched and written by Deborah Parker Junod (Project Manager) and David Chein. We received the full cooperation of the Minnesota Office of Environmental Assistance, county solid waste administrators, and others.

Sincerely,

/s/ James Nobles

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Summary

Minnesota recycles much of the waste it generates, but opportunities to divert more waste remain.

Major Findings:

- State law requires counties to manage the waste produced by citizens and businesses by waste reduction, reuse, and recycling in preference to landfilling. In 1989, the Legislature enacted legislation, referred to as SCORE, that authorizes grants to counties for waste reduction, reuse, and recycling activities (pp. 4-8).

- In addition to state grants totaling $14 million annually, counties use a significant amount of locally-generated revenue to implement these programs. Still, SCORE grants are important to counties, accounting for about one-third of the $42 million in revenue used for SCORE programs in 2000. Counties spent two-thirds of this money on recycling and household hazardous waste programs (pp. 13-19).

- In 2000, Minnesota recycled about 40 percent of the municipal solid waste it generated. On the other hand, Minnesota's residents and businesses have been generating increasing amounts of waste and are still throwing away a significant amount of material, like paper and food waste, that could have been reduced, recycled, or composted (pp. 35-46).

- Before deciding if and how to pursue options to divert more waste, however, state and county officials need to assess priorities, agree on funding, and better understand the costs and benefits of various alternatives (pp. 49-54).

Key Recommendations:

- To better gauge progress in meeting recycling and waste reduction goals, the Minnesota Office of Environmental Assistance (OEA) should periodically conduct statistically reliable waste composition studies (p. 44).

- To help counties and cities better target their programs, OEA should increase its efforts to gather, synthesize, and communicate research results on effective recycling and waste reduction practices (p. 54).

Report Summary

Counties have used state SCORE grants to implement an array of recycling and other waste abatement programs.

In 1989, the Legislature adopted legislation, based on recommendations made by the Governor's Select Committee on Recycling and the Environment (SCORE), to further waste reduction, reuse, and recycling. Among other things, SCORE statutes authorize state grants for recycling, managing problem materials, educating the public, and other related activities. Each county is required to provide matching funds of at least 25 percent of its SCORE grant. This report discusses how counties have used SCORE funds, SCORE's effectiveness, opportunities to abate more waste, and issues to consider in deciding how to proceed.

Counties Supplement State Grants and Devote Most Resources to Recycling Programs and Managing Household Hazardous Waste

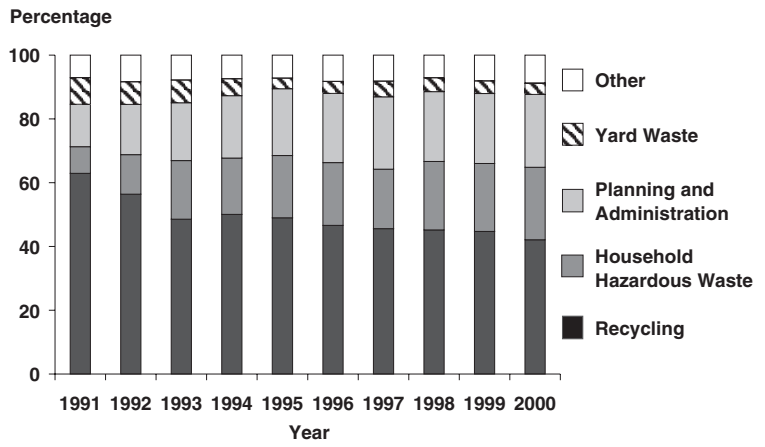
In addition to state SCORE grants totaling $14 million annually, counties use a significant amount of locally-generated revenue to implement these programs. Still, SCORE grants are important to counties, accounting for about a third of the $42 million in revenue used for SCORE programs in 2000. User fees are the primary source of county-provided revenue.

Recycling and household hazardous waste programs have accounted for about two-thirds of reported SCORE-related expenditures since 1991, but the relative proportion between the two has shifted over time. According to counties, recycling programs have matured, requiring less capital investment. At the same time, counties have spent more on household hazardous waste programs and their associated transportation and disposal costs.

SCORE Programs Vary Widely, Reflecting a Complex Mix of Public and Private Roles

Counties, cities, townships, and private hauling companies all have roles in implementing SCORE programs. Because of this division of labor and the level of flexibility available to counties, SCORE programs vary widely around the state. Curbside recycling, for example, is a complex mix of county-run and city-run systems; in some places, the county or city arranges for collection, and in others, residents contract directly with garbage hauling companies to collect recyclables. Details of other SCORE programs vary as well. But in general, counties place a high priority on managing household hazardous waste and other problem materials and consider education essential to recycling and household hazardous waste programs.

SCORE Spending by Category, 1991-2000



NOTE: The "other" category includes education, waste reduction, litter prevention, market development, and miscellaneous expenses; "planning and administration" includes consultant costs, staff salaries, training, office equipment and supplies, and other planning and administrative activities.

SOURCE: Office of the Legislative Auditor analysis of county SCORE report data.

Minnesota recycles more than most other states, but opportunities exist to do more.

The state's waste management priorities will influence decisions regarding the future of SCORE programs.

Minnesota Recycles 40 Percent of its Waste but Is Generating Increasing Amounts

With well-established recycling, household hazardous waste, and other SCORE programs, Minnesota recycles about 40 percent of the waste it generates. SCORE programs are prevalent throughout the state, and recycling has kept pace with rising waste generation. In 2000, 63 percent of counties met or exceeded state goals to recycle 35 percent of waste in outstate counties and 50 percent of waste in metro counties. Minnesota has a better recycling rate than most other states.

But, Minnesota did not meet the Legislature's statewide goal to reduce per capita waste generation by 10 percent between 1993 and 2000. Instead, per capita waste generation increased by 22 percent during this time. Further, Minnesotans are still discarding a significant amount of material that could be reduced, reused, recycled, or composted. A 1999 study found that about 35 percent of Minnesota's garbage, by weight, was paper, and an additional 26 percent was organic waste, much of which could be recycled or composted. Household hazardous waste and problem materials were also present. Because waste composition data are important in targeting county efforts and assessing their outcomes, we recommend that Minnesota's Office of Environmental Assistance (OEA) conduct periodic waste composition studies that produce statistically reliable estimates for commercial and residential waste in both metro and outstate counties.

Pursuing Additional Waste Abatement Opportunities Depends on Decisions Regarding Priorities and Funding

Waste composition data and county self-assessments indicate that opportunities exist to increase recycling and further reduce the amount of waste that Minnesotans discard. Key targets of opportunity include (1) increasing commercial sector recycling and (2) reducing, recycling, or composting more paper and organic waste. Progress may be limited, however, because it is often cheaper to throw away rather than recycle some materials.

The Legislature and counties will need to determine how aggressively to pursue those opportunities and how to fund existing and future waste abatement efforts. One issue to be considered is how much emphasis to place on reducing, reusing, or recycling rather than disposing of waste. Those who view landfills today as economically and environmentally sound argue against expanding most SCORE programs. Others, however, argue for investing more in efforts to divert additional waste. They cite concerns over the growing amount of Minnesota waste going to out-of-state landfills and long-term environmental and liability risks associated with landfills. Among SCORE programs, the state and counties also need to decide whether to maintain recycling efforts at current levels, to pursue paper and commercial recycling opportunities, or to shift emphasis to other areas, such as composting or waste reduction.

Whether the Legislature chooses to expand state resources, maintain the status quo, or eliminate the SCORE program, funding is a key issue. One approach is to fund SCORE programs

primarily through local fees. Proponents of this approach argue that doing so would more clearly tie the costs associated with recycling and disposal to residents and businesses. Others argue that the state must play a role. County officials whom we interviewed argued that a cutback or elimination of state SCORE funding would send a message that the state no longer places a priority on recycling and waste reduction. They also argue that it is politically difficult for county boards to raise service fees if needed to replace lost state dollars. OEA asserts that manufacturers should absorb a greater share of waste management costs by, for example, reducing packaging or collecting their products for reuse, recycling, or disposal when consumers no longer want them.

The variation among county SCORE programs and the lack of consistent outcome measures make it difficult to determine, specifically, what factors lead to successful programs. Pilot studies that include evaluation components would be useful in identifying best practices, and some such efforts have been completed or are underway. It is unclear, however, whether enough research like this is being done or whether the results of these and other studies are effectively being shared around the state. To assist counties in discerning which strategies would work best for them, we recommend that OEA increase its efforts to gather, synthesize, and communicate research results on effective recycling and waste reduction practices.

Introduction

In 1989, the Legislature adopted comprehensive waste reduction and recycling legislation based on recommendations made by the Governor's Select Committee on Recycling and the Environment (SCORE). Part of Minnesota's Waste Management Act, SCORE legislation gives the Office of Environmental Assistance (OEA) oversight authority for SCORE programs and authorizes state block grants to counties.

The SCORE legislation authorizes grants to counties for recycling and waste reduction.

SCORE grants may be used for recycling programs; developing markets for recycled products; reducing the amount of waste generated; and providing technical assistance and education to public and private entities on solid waste management, litter prevention, and recycling. Since the program's inception, the Legislature has appropriated $14 million per year for SCORE grants. The money comes from a sales tax on solid waste management services. Every county is eligible to receive a minimum grant of $55,000 plus an additional amount based on population. Counties must provide a minimum 25 percent match from locally generated funds.

The SCORE program is now 12 years old and some legislators are asking whether it has accomplished what it set out to do and what role the state should play in the future. Legislators are particularly interested in how counties have used the SCORE funds and how they have implemented recycling and other SCORE programs. In May 2001, the Legislative Audit Commission directed our office to evaluate Minnesota's SCORE activities. Our study addresses the following questions:

- **What role does SCORE play in furthering state solid waste management policy, and how do SCORE activities fit into Minnesota's waste management system?**
- **How do counties fund SCORE programs and allocate expenditures among them?**
- **How do counties implement and administer SCORE programs?**
- **How effective are Minnesota's recycling and other waste abatement programs?**
- **What opportunities exist to further reduce and recycle waste, and what are some of the issues to be considered in weighing the alternatives?**

To describe SCORE programs and revenue and expenditure trends, we reviewed relevant laws, reports, and policy documents and interviewed officials from state agencies, counties, and stakeholder groups. We also reviewed and analyzed

county reports, submitted annually to OEA, that describe SCORE activities, revenues, and expenditures. We used reports filed for calendar years 1991 through 2000 (the most recent year available) but did not independently verify report data. Finally, we visited 15 counties to review their SCORE programs in detail. We selected the counties judgmentally, considering a balance between metro and outstate counties, geographic location, population, and recent recycling rates. The counties were Anoka, Beltrami, Dakota, Hennepin, Lyon, McLeod, Olmsted, Otter Tail, Polk, Ramsey, St. Louis, Stearns, Washington, Wright, and the Western Lake Superior Sanitary District.[1] The total 2000 population of these counties was 67 percent of the state population, and they received 62 percent of SCORE grants disbursed.

To assess the effectiveness of SCORE programs and identify opportunities to further reduce waste and increase recycling, we analyzed recycling rates and waste generation trends for 1991-2000, compared Minnesota's recycling rate to rates in other states, and analyzed data on materials left in the waste stream. We also interviewed officials from state agencies, counties, and various stakeholder groups regarding targets of opportunity, efforts they have made to pursue these opportunities, and other related issues.

As we describe in Chapter 1, the Legislature has adopted a waste management policy stating that waste reduction and recycling are the most preferred methods of managing solid waste, while disposing of waste in landfills is the least preferred method. For the purposes of our review, we did not address the relative merits of preferring recycling and waste reduction over waste processing and landfills. Although some legislators wanted to know what counties would do if SCORE funding were reduced or eliminated, we could not make that determination. County, city, and township governments would ultimately determine whether to continue SCORE programs and how to pay for them.

This report is organized into five chapters. Chapter 1 describes the SCORE program in the context of Minnesota's waste management hierarchy. It also describes how counties and local governments organize waste management. Chapter 2 examines how counties fund SCORE programs and how they allocate expenditures among them. The chapter also discusses funding and spending trends between 1991 and 2000. Chapter 3 describes SCORE programs in greater detail, including collecting, processing, and marketing recycled material, managing household hazardous waste, promoting waste reduction, and other related programs. Chapter 4 examines the effectiveness of SCORE programs including a review of the comprehensiveness of recycling efforts and an evaluation of the state's success in meeting recycling and waste reduction goals. Chapter 5 explores additional opportunities to reduce waste and recycle and presents some of the issues that warrant future consideration.

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1 The Western Lake Superior Sanitary District serves the Duluth area and has the powers of a county for solid waste issues. Throughout the report, we refer to the District as a county.

1 Waste Management in Minnesota

SUMMARY

Minnesota law says that counties should manage municipal solid waste according to a hierarchy that makes waste reduction, reuse, and recycling the preferred methods and landfill disposal the least preferred. In 1989, the Legislature adopted comprehensive waste reduction and recycling legislation, commonly referred to as SCORE, to support the waste management hierarchy. Among other things, the legislation authorized state block grants to counties that could be used for recycling and waste reduction activities, education, developing markets for recycled material, and management of household hazardous waste. The legislation also established goals for recycling and waste reduction.

In Minnesota, state, county, city, and some township governments all play important roles in managing "mixed municipal solid waste."[1] The state has established a general framework for managing solid waste and has enacted laws that specify how certain wastes must be handled. Counties are required to have a solid waste management plan, and they may enact ordinances to ensure that waste is handled in a manner consistent with the plan and with state policies. Cities and, in some cases, townships are generally responsible for overseeing day-to-day garbage collection, but counties also play an important role.

This chapter presents a general overview of Minnesota's system for managing mixed municipal solid waste and, specifically, the role of the SCORE program. It addresses these questions:

- **What role does SCORE play in furthering state solid waste management policy?**
- **How do SCORE activities fit into Minnesota's waste management system?**

To answer these questions, we reviewed state laws and interviewed officials at the Office of Environmental Assistance (OEA) and the Minnesota Pollution Control Agency (MPCA), solid waste administrators in 15 counties, and representatives of the waste hauling industry.

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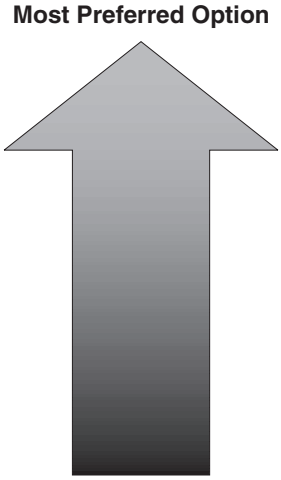
1 Mixed municipal solid waste is trash set out by homeowners, businesses, and offices intended to be collected as garbage. It does not include construction and demolition waste, sewer sludge, industrial waste, infectious waste, agricultural waste, ash, auto hulks, street sweepings, or items banned from the waste stream such as tires, used oil, and batteries. Throughout this report, we use the terms mixed municipal solid waste, municipal solid waste, trash, and garbage interchangeably. Material specifically set out for recycling is *not* mixed municipal solid waste.

MINNESOTA'S WASTE MANAGEMENT HIERARCHY

In order to protect the state's environment and public health, the Legislature established an order of preference for managing waste. This preferential order, commonly referred to as Minnesota's waste management hierarchy, is shown in Figure 1.1. The hierarchy establishes that:

- **According to state policy, waste reduction and recycling are the most preferred methods to manage solid waste, while disposing of waste in landfills is the least preferred method.**

Figure 1.1: Minnesota's Waste Management Hierarchy



Reduction and Reuse

Recycling

Yard and Food Waste Composting

Resource Recovery
through MSW composting or incineration

Landfill Disposal
producing no methane or producing methane retrieved for use as fuel

Landfill Disposal
producing methane that is not retrieved

SOURCE: *Minn. Stat.* (2001), §115A.02 (b).

Recognizing that solid waste poses a risk to the environment no matter how it is managed, the Legislature placed waste reduction and recycling at the top of the hierarchy. The less waste produced and the more material recycled, the less the need for processing or disposal. Landfill disposal is at the bottom of the hierarchy because of pollution and related liability concerns and the lost opportunity to use waste as a resource.

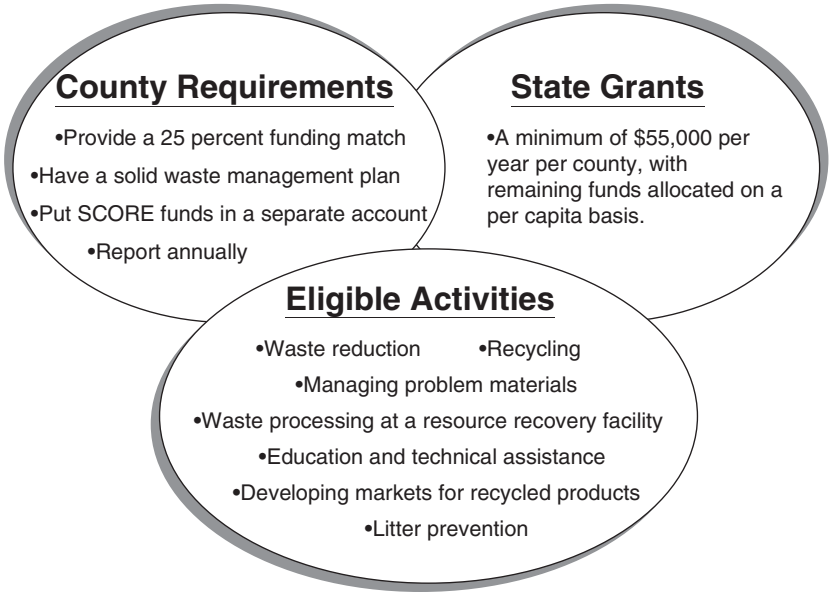
SCORE Grants to Counties

To further the goals of waste reduction and recycling, the 1989 Legislature adopted comprehensive legislation based on the recommendations of the

Governor's Select Committee on Recycling and the Environment.[2] This set of laws is commonly referred to as SCORE. As shown in Figure 1.2, SCORE authorizes grants of $55,000 or more to counties if they meet certain requirements, including providing matching funds and having an approved solid waste management plan. Counties may use the grants for a specified group of waste abatement activities including waste reduction, recycling, education, and management of problem materials such as household hazardous waste.[3] The 2001 Legislature added waste processing at resource recovery facilities (e.g., incinerators that burn waste to produce energy) as another acceptable use of SCORE funds.[4]

Counties meeting eligibility requirements receive a minimum SCORE grant of $55,000 per year with additional funds allocated by population.

Figure 1.2: Key SCORE Provisions



SOURCE: *Minn. Stat.* (2001), §115A.557.

Funding for SCORE comes from a sales tax on solid waste management services.

State funding for SCORE comes from a portion of sales taxes on solid waste management services. The tax rate for municipal solid waste collection is 9.75 percent for residential customers and 17 percent for commercial customers.[5] Half of the proceeds or $22 million, whichever is greater, goes to the Solid Waste Fund, used for MPCA landfill assessment and closure costs and appropriations

2 Governor's Select Committee on Recycling and the Environment (SCORE), *Recommendations to Rudy Perpich, Governor, State of Minnesota* (St. Paul, 1988).

3 *Minn. Stat.* (2001), §115A.557. Problem materials are materials that can cause health or environmental damage or processing problems when deposited in landfills or waste processing facilities. *Minn. Stat.* (2001), §115A.03, subd. 24a. Household hazardous waste is waste generated from household activities that is corrosive, flammable, toxic, or otherwise fits Minnesota Pollution Control Agency criteria for hazardous waste. *Minn. Stat.* (2001), §§115A.96, subd. 1 (b) and 116.06, subd. 11.

4 *Laws of Minnesota* (1Sp2001), ch. 2, sec. 125.

5 *Minn. Stat.* (2001), §297H. Different tax rates apply to construction debris, industrial waste, and infectious waste.

for solid waste and groundwater programs. The remainder goes to the General Fund, but a portion is used by the Legislature to fund OEA and SCORE grants to counties. Since the program's inception, the Legislature has appropriated $14 million per year for SCORE grants. According to OEA, the solid waste management tax generated $53.9 million in revenue in fiscal year 2001. About $27 million went to MPCA, and $20 million went to OEA (including $14 million for SCORE, $3 million for competitive grants and loans for waste abatement initiatives, and $3 million for the office's operating budget). Approximately $7 million remained in the General Fund.

Since the program's inception, the Legislature has appropriated $14 million per year for SCORE grants.

The SCORE legislation also requires counties to ensure that residents of single and multifamily dwellings have an opportunity to recycle.[6] The law requires that:

- Each county must have a local recycling center that accepts at least four different materials and is open a minimum of 12 hours per week year round.
- Counties must have convenient sites for collecting recyclable materials.
- Metro cities with 5,000 or more people and outstate cities with over 20,000 people must provide monthly curbside pickup of at least four broad types of recyclable materials.
- Counties must provide information on how, when, and where materials may be recycled, including a promotional program that publishes notices at least once every three months.

OEA oversees SCORE programs.[7] It provides technical assistance to counties and annually collects data from counties on their SCORE revenues and expenditures, the amounts of solid waste generated and recycled, and their recycling and waste reduction programs. It compiles this data in an annual report that provides statewide trends as well as measures of each county's recycling efforts.[8] OEA also reviews county solid waste management plans to ensure that each county has articulated how it will manage its waste in accordance with state policies promoting waste reduction and recycling and reducing the dependence on landfills for disposing of solid waste.[9] The office has, on occasion, temporarily withheld SCORE funding from counties that were late in updating their plans or did not meet other statutory plan requirements.

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6 *Minn. Stat.* (2001), §115A.552.

7 Throughout the report, we use the phrase "SCORE programs" to refer collectively to waste reduction, recycling, education, management of problem materials, and other activities for which SCORE grants may be used.

8 See, for example, Minnesota Office of Environmental Assistance, *Report on 1999 SCORE Programs* (St. Paul, 2001).

9 Plans must describe the county's existing waste management system and discuss the county's strategy for meeting state waste reduction and recycling goals and household hazardous waste requirements. Counties must update their plans every five years. *Minn. Stat*. (2001), §§115A.46 and 473.803.

The Legislature established recycling goals for each Twin Cities metro county to recycle 50 percent of waste generated and for each outstate county to recycle 35 percent.

The 1989 SCORE legislation established goals for each of the seven Twin Cities metropolitan area counties to recycle 35 percent of their mixed municipal solid waste by December 31, 1993 and for each outstate county to recycle 25 percent.[10] The goals were subsequently amended to 50 percent for the metro counties and 35 percent for outstate counties by December 31, 1996.[11] The goals have not been revised since 1996. A county's SCORE grant is not affected by its success in achieving the prescribed goals. We discuss counties' progress in meeting these goals in Chapter 4.

Figure 1.3 shows how OEA calculates county recycling rates. OEA first calculates a base recycling rate for each county which is the weight of all material recycled divided by the weight of all waste generated, expressed as a percentage. In other words, it is the percentage of all waste generated that is recycled. OEA then adds credits for county yard waste and "source reduction" (i.e., waste reduction) programs.

Figure 1.3: Minnesota's Recycling Rate Formula

$$\text{Recycling Rate} = \frac{\text{Tons of Recycled Material}}{\text{Tons of Waste Generated}} + \text{Yard Waste Credit} + \text{Source Reduction Credit}$$

NOTE: Tons of waste generated includes mixed municipal solid waste, problem materials that are banned from landfills, recycled material, and waste illegally buried or burned (estimated). Tons of recycled material includes household hazardous waste and other problem materials collected. Yard waste is not included in either recycled material or waste generated.

SOURCE: Adapted from Minnesota Office of Environmental Assistance, *Report on 1999 SCORE Programs* (St. Paul, 2001), 9.

State law allows counties to receive a yard waste credit of up to five percentage points and a source reduction credit of up to three percentage points added to the base rate if they engage in certain yard waste management and waste reduction activities.[12] State law bans yard waste from garbage collection and disposal in landfills or waste processing facilities other than compost facilities, and counties do not typically collect data on how much yard waste is generated and composted.[13] In lieu of that, OEA awards the yard waste credit based on a county's response to a checklist of activities such as the availability of yard waste curbside collection and yard waste drop-off sites and the existence of county yard waste education programs.[14] Similarly, because it is very difficult to measure the amount of waste not generated, OEA awards the source reduction credit based on a county's response to a checklist of activities designed to reduce waste. These include conducting focus groups or distributing material on waste reduction,

10 Minn. Stat. (2001), §115A.551, subd. 2. The metro counties are Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington counties.

11 Minn. Stat. (2001), §115A.551, subd. 2a (a).

12 Minn. Stat. (2001), §115A.551, subd. 2a (b).

13 Minn. Stat. (2001), §115A.931. Yard waste is garden waste, leaves, lawn cuttings, weeds, pruning, and shrub and tree wastes. *Minn. Stat*. (2001), §115A.03, subd. 38.

14 Minn. Stat. (2001), §115A.551, subd. 2a (c).

providing technical assistance on waste reduction to businesses, or staffing waste reduction displays at county fairs or similar events.

In addition to recycling goals, the Legislature established a statewide goal to reduce the amount of mixed municipal solid waste generated per capita by 10 percent. This reduction was to be achieved by the end of 2000 compared to the amount generated in 1993.[15] The Legislature required OEA to develop a strategy to achieve this goal and report on the progress being made.[16] We discuss the state's progress in meeting this goal in Chapter 4.

The Legislature also established a goal for the state to reduce the amount of waste generated per capita by 10 percent between 1993 and 2000.

THE WASTE MANAGEMENT SYSTEM

Waste management involves much more than garbage collection. Waste management includes 1) efforts to design products and educate consumers to reduce the amount and toxicity of waste generated in the first place; 2) collection and removal of garbage from the residences, businesses, and institutions that generate it; and 3) processing or disposing of the garbage.

Waste Generation

Waste management begins with the design and use of products that become waste. Many factors influence the amount of waste generated including manufacturers' choices in designing and packaging products, economic conditions (people consume more products during good economic times), and consumer preferences for disposable goods. Designing products that can be reused or recycled saves resources that would be required to manufacture new products. In addition, reducing the amount of waste generated in the first place along with recycling reduces the resources needed to manage garbage.

After waste reduction and recycling, the remaining waste is mixed municipal solid waste, or garbage, that must be managed. In 2000, 2.3 million tons of waste were collected for recycling, and 3.2 million tons were managed as garbage.

Garbage Collection

In Minnesota, cities and, in some cases, townships are generally responsible for garbage collection. Counties, however, can impose conditions on garbage collection through local ordinances and licensing requirements for waste haulers. As discussed in Chapter 3, counties are also responsible for collecting household hazardous waste and other problem materials such as large appliances and used tires that are excluded from residential garbage collection. Some counties also oversee garbage collection in rural areas.

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15 Minn. Stat. (2001), §115A.55, subd. 4 (a).

16 Minn. Stat. (2001), §115A.55, subd. 4 (b).

Garbage collection generally works under two types of systems: "open" collection and "organized" collection.[17] In an open collection system, haulers (usually licensed by the city or county) compete with each other for the business of residential customers. Customers select a garbage hauler and pay the hauler directly for services. In an organized collection system, the county or city directly provides collection services or contracts with one or more garbage haulers to provide residential garbage collection for an entire community. Residents then generally pay their garbage bill to the city or county. In a few cities with organized collection, the city owns the garbage trucks and employs the collection personnel itself. Regardless of the system of garbage collection for residential customers, commercial customers generally make their own arrangements for garbage collection (an open system), although nothing precludes a city from using an organized collection system to serve commercial customers.

Garbage haulers may take the garbage they collect to a transfer station for temporary storage. Transfer stations are large warehouses with concrete floors where garbage is dumped. At some transfer stations, material that can be recycled is separated from the garbage. The remaining garbage is then taken to its final destination for processing or disposal.

Garbage Processing and Disposal

Once collected, garbage is either composted, burned to produce energy, or disposed of in landfills.

Once collected, garbage is either processed (through composting, incinerating to produce energy, or processing into refuse-derived fuel) or disposed of in landfills. With composting, waste is allowed to decay naturally, requiring only periodic turning and aeration. The resulting material, called compost, is used as a fertilizer or bedding for plants and gardens. As we discuss in Chapter 3, composting is used extensively for managing yard waste removed from the waste stream, and counties are looking at it as a way to manage organic waste. However, composting has not been used extensively as a method to process garbage. In 2000, less than 1 percent of Minnesota's 3.2 million tons of garbage was composted.[18]

Resource recovery through incineration, also called "waste-to-energy processing," involves burning garbage to produce steam used to generate electricity or for other industrial purposes. While state policy puts resource recovery by incineration above landfilling in the waste management hierarchy, critics of this technology are concerned about possible air pollution. Also, waste-to-energy processing produces an ash that is usually deposited in specially-designed landfills. In 2000, five waste-to-energy incinerators operated in outstate counties and one in the Twin Cities metro area. In 2000, 13 percent of Minnesota's garbage was burned to produce energy.[19]

Making refuse-derived fuel involves processing garbage into pellets that are then burned to generate electricity. This technology requires that recyclable and other nonburnable material be removed. Processing waste into refuse-derived fuel,

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17 Organized collection may also be referred to as "public collection." In this report, we use the term organized collection.

18 Office of the Legislative Auditor analysis of county SCORE report data.

19 *Ibid.*

In 2000, about 13 percent of Minnesota's nonrecycled garbage was burned at waste-to-energy facilities such as this one in Otter Tail County.

however, is more expensive than incineration. Minnesota has two refuse-derived fuel facilities. In 2000, 25 percent of Minnesota's garbage was processed into refuse-derived fuel, the vast majority of which was handled at the Minnesota facilities.[20]

Although state policy ranks landfilling as the last preferred method of managing waste, 60 percent of nonrecycled garbage was landfilled in 2000.

Landfilling is burying garbage in the ground. As noted above, state policy ranks landfilling as the least preferred option for managing waste because of its pollution potential, liability issues, and lost resource-recovery opportunities.[21] Landfill space is also limited. In 2000, unprocessed garbage generated in Minnesota went to 22 landfills in Minnesota and 11 landfills located in border states. OEA estimates that Minnesota has enough landfill capacity to handle waste until 2010 without expanding existing landfills or siting new ones.[22] Counties generally find that it is politically difficult to site a new landfill because nobody wants one in his or her neighborhood.[23] Nevertheless, landfilling is the most common means of handling garbage in Minnesota. In 2000, 60 percent of the garbage remaining after recyling was taken to landfills, about one-third of which went out of state.[24]

20 Ibid. A small amount of Minnesota solid waste was also taken to a refuse-derived fuel facility in La Crosse, Wisconsin.

21 Landfills also produce methane gas that can be a source of air pollution and pose a fire hazard if not properly managed. If properly collected, on the other hand, methane gas can be an important energy source.

22 Minnesota Office of Environmental Assistance, *Solid Waste Policy Report* (St. Paul, 2000), 31.

23 According to OEA, the last new municipal solid waste landfill to open in Minnesota was in St. Louis County in the early 1990s. An attempt to site a new landfill in the metro area in the late 1980s failed because no community wanted one. About a dozen landfills have expanded their permitted capacity since 1990, mostly by increasing their slopes and expanding upward.

24 Office of the Legislative Auditor analysis of county SCORE report data.

Several events in the last decade have curtailed counties' ability to manage their garbage. The waste hauling industry has consolidated as small independent haulers have been purchased by larger companies. These large national waste hauling companies also own landfills and transfer stations in Minnesota and surrounding states. These changes in the waste hauling industry have highlighted the tension between counties' efforts to meet state policy goals and private sector interests. For example, it is cheaper for waste haulers to ship garbage to landfills in neighboring states than to take the garbage to a refuse-derived fuel facility. OEA officials point out that today's waste haulers are not paying the full cost of disposal at landfills which includes landfill closure, post-closure maintenance and monitoring, and financial assurance for possible cleanup of future ground water contamination. Similarly, because the larger hauling companies own their own landfills, they have an additional incentive to maximize the amount of garbage that is landfilled and a disincentive to encourage their customers to recycle. Waste haulers, on the other hand, told us that they are committed to recycling and that they have made major investments in recycling collection and material recovery facilities that prepare recycled material for market.

Consolidation in the waste hauling industry and a Supreme Court decision have limited counties' ability to designate where waste is taken.

Olmsted County owns and operates both a waste-to-energy incinerator and a landfill and provides many waste management services at a Rochester site.

A United States Supreme Court decision also limited counties' ability to designate where waste is taken. The court ruled that a county ordinance designating where privately-owned garbage hauling companies had to deposit garbage was unconstitutional.[25] The court ruled that the flow of waste is interstate commerce, and that local ordinances could not designate where haulers take it. This decision has inhibited efforts by Minnesota counties to divert garbage to waste processing facilities rather than landfills. Counties can legally control the flow of waste through the terms of organized collection contracts or through licensing requriements. In order to fulfill their obligations to supply garbage to

25 C & A Carbone Inc. v. Town of Clarkstown, 511 U.S. 383 (1994).

refuse-derived fuel facilities and incinerators, some counties have had to subsidize processing facility disposal fees (or "tip fees") to make them comparable to landfill disposal fees.[26]

Faced with cheaper fees to deliver garbage to landfills than waste processing facilities and limited ability to prevent garbage haulers from taking waste to landfills in other states, counties have found it difficult to meet their goals to reduce landfill use. Indeed, after recycling, the percentage of garbage being deposited in landfills rose from 31 percent in 1992 to 60 percent in 2000.[27]

The significance of this issue is under debate. Representatives of the waste hauling industry argue that landfills today are environmentally sound and economical, particularly landfills equipped to recover and use methane gas emissions as fuel. Large waste haulers are confident that they have enough landfill capacity, in and out of the state, to handle Minnesota's garbage in the future. Most county solid waste administrators and other stakeholders we interviewed, however, reaffirmed support for current policy to minimize land disposal, arguing that: (1) Minnesota should not rely on other states' continued willingness to take Minnesota's municipal solid waste; (2) landfilling carries with it long-term environmental and liability risks; and (3) siting a new landfill in Minnesota is a very difficult process.

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26 The 2001 Legislature recognized this problem and appropriated $6 million per year for counties to pay $5 per ton towards the cost of processing waste at an incinerator or refuse-derived fuel facility. *Minn. Stat.* (2001), §115A.545.

27 Minnesota Office of Environmental Assistance, *Report on 1999 SCORE Programs*, 14, and Office of the Legislative Auditor analysis of county SCORE report data.

2 SCORE Funding and Expenditures

Summary

Most counties match state SCORE grants in excess of what is legislatively required and spend their funds on the activities SCORE was intended to promote. In addition to state SCORE grants totaling $14 million annually, counties and cities use a significant amount of locally-generated revenue to implement these programs. Still, the grants are an important revenue source, each year accounting for 30 to 40 percent of revenue used for SCORE programs. Counties report expenditures on the full array of activities outlined in the SCORE legislation, but about two-thirds of their spending is for recycling and household hazardous waste management.

This chapter discusses SCORE revenues and expenses and addresses the following question.

- **How do counties fund SCORE programs and allocate expenditures among them?**

We based our analysis of SCORE revenues and expenditures on county SCORE reports for 1991 through 2000. Reporting, however, is not consistent among counties. First, while the Office of Environmental Assistance (OEA) urges counties to report all direct county expenditures for SCORE activities, counties are only required to account for the mandatory 25 percent match. To the extent that counties choose to account for only the minimum match but actually spend in excess of that amount, the data we report understate actual county spending. Second, county SCORE reports do not include SCORE revenues or expenses incurred directly by cities or townships. Again, to the extent that cities and townships directly fund SCORE activities, the data we present may be incomplete. The issue of municipal funding is addressed later in the chapter. Finally, while OEA provides reporting guidance to counties, the definition of which expenses are SCORE-related is open to interpretation, and counties vary in what they choose to report. While we asked officials from the 15 counties we visited for additional details on their 2000 SCORE reports, we did not verify or otherwise assess the reliability of SCORE report data.

REVENUES

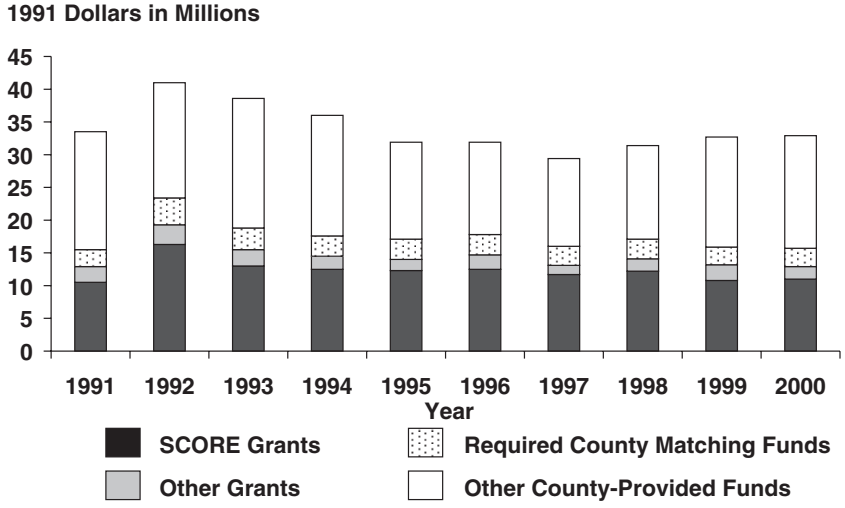
As discussed in Chapter 1, each county is required to match 25 percent of its SCORE grant. Counties may fund their share from a variety of sources, including fees, general revenue, or sale of recycled material. Overall:

- **Counties report locally-generated revenues that consistently exceed the law's minimum requirement, but SCORE grants remain an important revenue source, accounting for 30 to 40 percent each year of counties' SCORE funding since 1991.**

Based on data reported by counties, total funding for SCORE programs has fluctuated somewhat over the past ten years. However, as shown in Figure 2.1, total county funding for SCORE programs has consistently exceeded the required 25 percent grant match.[1] In 2000, for example, total county-provided funds were about 180 percent of SCORE grants.[2]

In addition to SCORE grants, counties provide a significant amount of local revenue for SCORE programs.

Figure 2.1: State and County-Provided SCORE Funding, in Constant Dollars, 1991-2000



NOTE: Dollar values were indexed to constant 1991 dollars using the Bureau of Labor Statistics' consumer price index for all urban consumers (CPI-U); http//data.bls.gov/labjava/outside.jsp?survey=cu; accessed August 8, 2001.

SOURCE: Office of the Legislative Auditor analysis of county SCORE report data.

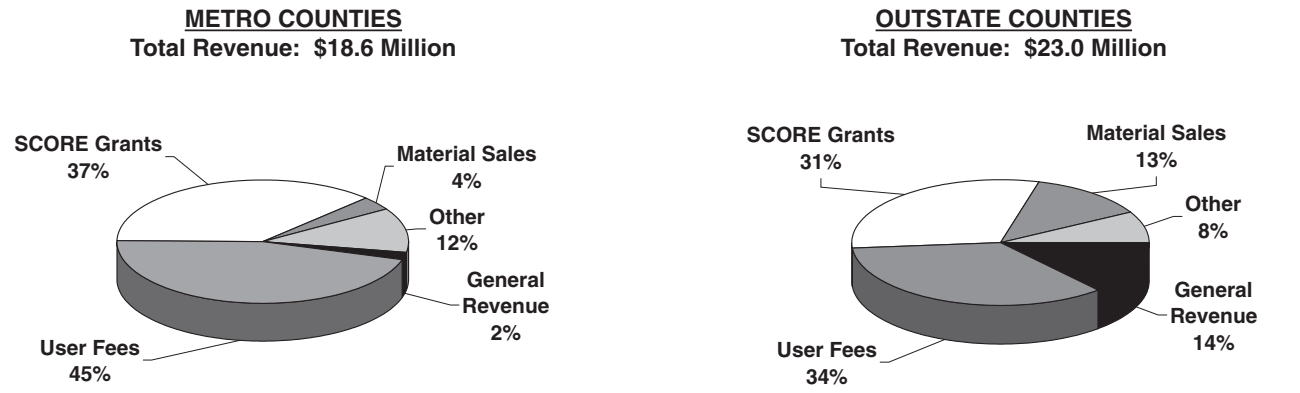
1 Dollar values were indexed to constant 1991 dollars using the Bureau of Labor Statistics' consumer price index for all urban consumers (CPI-U), http://data.bls.gov/labjava/outside.jsp?survey=cu; accessed August 8, 2001.

2 This analysis excludes seven counties whose calendar year 2000 grants were withheld because they did not have up-to-date solid waste management plans. Six counties reported exact 25 percent matches. Five counties provided less than 25 percent. According to OEA, three of these counties did not receive a SCORE grant in 1999 and used local funds to make up the difference; OEA considered and approved their match over a 2-year period. In the other two cases, counties received funds from other counties for providing household hazardous waste services. We did not include such funds in our analysis.

Although counties supplement state-provided funds, SCORE grants remain an important revenue source. From 1991 to 2000, SCORE grants accounted for 30 to 40 percent each year of county funding for SCORE programs. As shown in Figure 2.2, SCORE grants in 2000 accounted for a larger share of funding for metro counties than for outstate counties. Metro counties may also receive local recycling development grants, funded from fees charged at metropolitan area landfills.[3] In 2000, these grants accounted for 8 percent, or $1.4 million of metro SCORE revenue (and are included in the Figure 2.2 "other" category).

For both metro and outstate counties, user fees are the primary source of county-provided revenue for SCORE programs. User fees include (1) service fees—a uniform fee paid by all waste generators or property owners as part of property tax bills or hauler bills; and (2) tip fees—volume-based fees charged to drop waste at processing facilities or landfills located in the county. As shown in Figure 2.2, user fees accounted for about 45 percent of total funding in metro counties and 34 percent of total funding in outstate counties in 2000. Outstate counties made up for this difference by relying more heavily on general revenue and revenues from the sale of recycled material.

Figure 2.2: SCORE Revenues by Source, Metro and Outstate Counties, 2000



NOTE: "Other" revenue is from state and regional household hazardous waste grants, other types of grants, and miscellaneous sources.

SOURCE: Office of the Legislative Auditor analysis of county SCORE report data.

3 Of funds raised from the metropolitan solid waste landfill fee, three fourths are deposited in a metropolitan landfill abatement account and the remaining fourth is deposited in a metropolitan landfill contingency action trust fund. Landfill abatement account funds are to be used to reduce to the greatest extent feasible and prudent the need for, and practice of, land disposal of mixed municipal solid waste. At least 50 percent of abatement account funds are to be dispersed to metro counties via Local Recycling Development Grants. These grants may be used for planning, developing, and operating yard waste composting or recycling activities, and grants must be matched by equal county expenditures for the activities for which the grant is made. *Minn. Stat.* (2001), §§473.843; 473.844; 473.8441.

PROGRAM EXPENDITURES

Overall,

- **Minnesota counties spent resources on the full array of activities that SCORE was intended to promote, but they spent most on recycling and household hazardous waste programs.**

As shown in Table 2.1, counties reported about $42 million in SCORE expenditures in 2000, with spending reported for each of the program activities spelled out in the SCORE legislation.[4] Counties invested the most in recycling and household hazardous waste programs, but also distributed about $7 million to other local units of government in the form of pass-through grants.[5] About three-quarters of these city and township grants were used for recycling programs.

About two-thirds of SCORE spending is for recycling and household hazardous waste programs.

Table 2.1: SCORE Expenditures by Category, 2000

	Metro Counties		Outstate Counties		All Counties	
Expenditure Category	Amount (Thousands)	Percent	Amount (Thousands)	Percent	Amount (Thousands)	Percent
Recycling	$1,232	7%	$11,705	51%	$12,938	31%
Household Hazardous Waste and Problem Material Management	6,007	32	3,283	14	9,290	22
Planning, Oversight, and Administration	3,533	19	5,000	22	8,533	20
Grants to Other Local Units of Government	5,638	30	1,513	7	7,151	17
Education	1,060	6	918	4	1,978	5
Yard Waste	919	5	502	2	1,421	3
Waste Reduction	84	<1	109	<1	192	<1
Market Development	85	<1	32	<1	118	<1
Litter Prevention	8	<1	52	<1	61	<1
TOTAL	$18,567	100%	$23,115	100%	$41,682	100%

NOTE: Columns and rows may not add to totals due to rounding.

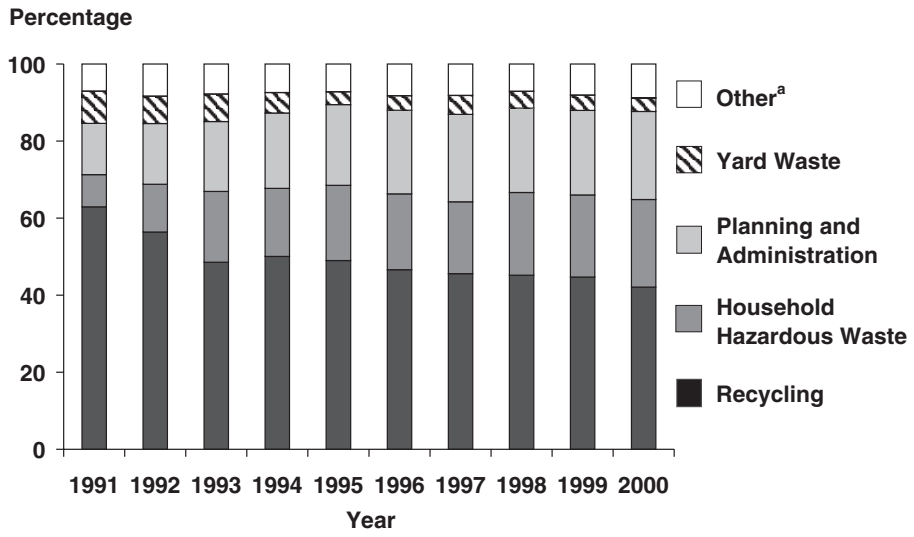
SOURCE: Office of the Legislative Auditor analysis of county SCORE report data.

The spending profile for 2000 parallels earlier years. As shown in Figure 2.3, recycling and household hazardous waste programs taken together have consistently accounted for about two-thirds of reported SCORE expenditures, though the amount for recycling alone has declined. According to the county officials we spoke with, the decline in recycling expenditures reflects the maturity of recycling programs and a declining need for capital investments. Indeed, reported capital expenditures for recycling programs, in 1991 dollars, declined by 86 percent between 1991 and 2000, from $5.0 million to $0.7 million. In contrast,

4 Processing waste at a resource recovery facility was added to the list of allowable expenditures in 2001; thus, this category is not included in the table.

5 Household hazardous waste is waste generated from household activities that is corrosive, flammable, toxic, or otherwise fits Minnesota Pollution Control Agency criteria for hazardous waste. *Minn. Stat.* (2001), §115A.96, subd. 1 (b).

Figure 2.3: SCORE Spending by Category, 1991-2000



NOTE: For this analysis, county grants to cities and townships were allocated by program.

[a]Includes education, waste reduction, litter prevention, market development, and miscellaneous expenses.

SOURCE: Office of the Legislative Auditor analysis of county SCORE report data.

Since 1991, the proportion of spending on SCORE planning and administration as well as household hazardous waste programs has grown.

capital expenditures for household hazardous waste programs, in 1991 dollars, increased over the same period by about 380 percent, from approximately $230,000 to $1.1 million. In addition, household hazardous waste transportation and disposal costs increased by about 72 percent during this period, from $1.2 million to $2.1 million, in 1991 dollars.

SCORE planning, oversight, and administration expenditures have also increased as a proportion of total spending since 1991.[6] Most of this increase reflects higher reported expenditures for staff salaries, though it is not clear whether the increase is due to more inclusive reporting of staff time under the SCORE umbrella, actual staffing increases, real salary increases, or a combination thereof.

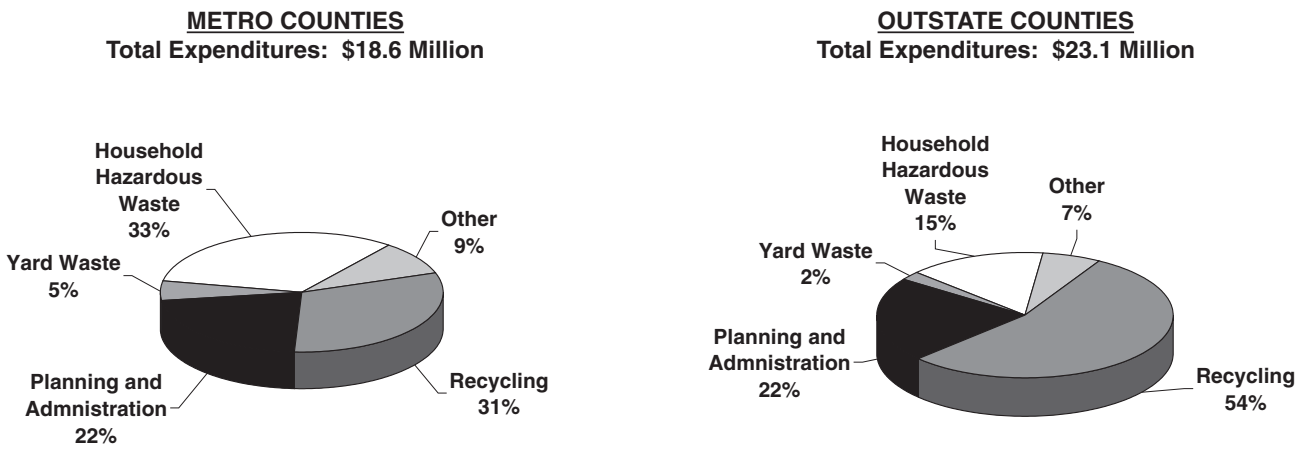
Spending profiles for metro and outstate counties differ. As shown in Figure 2.4, about half of outstate county SCORE expenditures are for recycling programs, compared to about one-third of metro county expenditures. This difference may reflect how recycling programs are administered. As discussed in greater detail in Chapter 3, all metro counties delegate recycling collection to cities and townships. Many metro cities supplement county funding or provide recycling collection under an open system in which residents and businesses contract directly with haulers. Metro counties also spend a higher percentage of funds on household hazardous waste programs.

Because OEA requires counties to report only direct county expenditures for SCORE activities, SCORE program reports underreport SCORE expenditures

6 This category includes expenditures for consultants, salaries for staff working on SCORE activities, office equipment and supplies, training and conferences, and other SCORE planning and administrative activities.

for counties in which cities also fund SCORE activities. As shown in Table 2.2, 7 of the 15 counties we visited reported that cities or townships provided about $12 million in additional funding for SCORE activities. For example, Hennepin County cities spent $6.3 million of their own revenues on recycling programs in addition to the $2.9 million provided by the county.

Figure 2.4: SCORE Expenditures, Metro and Outstate Counties, 2000



NOTE: For this analysis, county grants to cities and townships were allocated by program. The "other" category includes waste reduction, education, market development, litter prevention, and miscellaneous expenses.

SOURCE: Office of the Legislative Auditor analysis of county SCORE report data.

Table 2.2: County, City, and Township SCORE Funding in Select Counties, 2000

County	Total SCORE-Related Funding	State SCORE Grant	County Grants to Cities and Townships	Additional Funds Provided by Cities and Townships
Anoka	$ 1,724,885	$ 801,191	$ 734,008	$ 1,233,067
Beltrami	167,058	103,635	0	Unknown
Dakota	1,167,865	934,292	283,012	0
Hennepin	8,549,917	2,930,111	2,930,111	6,279,927
Lyon	331,676	69,040	0	Unknown
McLeod	832,528	95,109	248,805	0
Olmsted	680,228	325,609	0	0
Otter Tail	850,561	148,390	0	261,792
Polk	521,278	220,028	40,000	144,492
Ramsey	4,443,433	1,339,693	979,503	3,330,652
St. Louis	1,102,366	261,791	0	Unknown
Stearns	618,982	360,097	11,563	3,344
Washington	1,261,842	534,366	582,073	557,705
Western Lake Superior Sanitary District	1,028,650	277,838	78,398	0
Wright[a]	101,043	0	212,805	Unknown
TOTAL	$23,382,312	$8,401,190	$6,100,278	$11,810,979

[a]Wright County's 2000 SCORE grant was delayed because the county did not have an approved up-to-date solid waste management plan. In July 2001, the county received $233,823 in SCORE funding originally due in 2000.

SOURCE: Office of the Legislative Auditor analysis of county SCORE report and survey data.

3 Characteristics of County SCORE Programs

SUMMARY

County SCORE programs share common elements, but implementation details vary widely. Many counties delegate responsibility for recycling to cities and townships. Counties, cities, and townships differ in the amount of control they exert over recycling collection and in the extent to which they process and market recycled goods. All of the counties we visited, however, place a high priority on collecting household hazardous waste. Although only a small portion of SCORE spending is devoted to education, counties we visited consider a good education program essential to their recycling and household hazardous waste programs. Counties promote waste reduction, but county officials said that state and national efforts are needed to make significant gains.

In Chapter 2, we noted that about two-thirds of county SCORE expenditures are for recycling and household hazardous waste programs. Counties devote fewer resources to waste reduction, education, yard waste, and developing markets for recycled goods. In this chapter, we describe the characteristics of county SCORE programs and address the question:

- **How do counties implement and administer SCORE programs?**

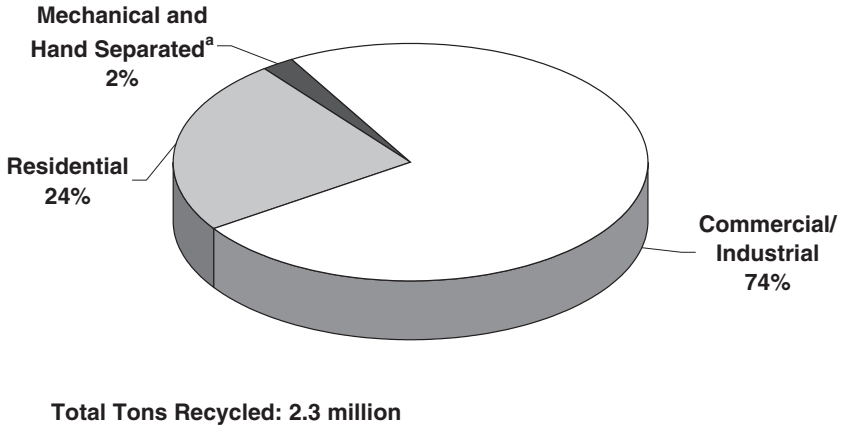
To answer this question, we analyzed the SCORE reports that Minnesota's 87 counties submitted to the Office of Environmental Assistance (OEA) for 2000.[1] We visited 15 counties where we interviewed solid waste administrators and other officials about recycling and other SCORE activities. We also reviewed solid waste management plans for those 15 counties. Finally, we interviewed representatives of the waste management industry, recycling advocacy groups, and state agencies.

RECYCLING PROGRAMS

Figure 3.1 shows that about three-fourths of the material collected for recycling comes from businesses, and about one-fourth comes from residences. Counties

1 Pope and Douglas counties have a joint powers agreement and report combined data. We treat them as a single county in this report. The Western Lake Superior Sanitary District (WLSSD) serves the city of Duluth and surrounding cities and townships in St. Louis and Carlton counties. It has the powers and responsibilities of a county with respect to solid waste management. *Minn. Stat*. (2001), §§458D.01-458D.24. We treat WLSSD as a county in this report. References to St. Louis County exclude the portion of the county served by WLSSD.

Figure 3.1: Recycled Material by Sector, 2000



[a]Material mechanically or manually separated from municipal solid waste at transfer stations or waste processing facilities.

SOURCE: Office of the Legislative Auditor analysis of county SCORE report data.

Although nearly three-fourths of recycled material comes from business and industry, counties have focused more on residential recycling programs.

we visited, however, were further along in developing recycling programs for residences than they were in commercial, industrial, and institutional settings.

Residential Recycling

As discussed in Chapter 1, cities (and, in some instances, townships) have day-to-day responsibility for residential garbage collection. In the case of recycling, however, some counties take a more direct role. Because of this division of labor among counties, cities, and townships and the level of flexibility they have to manage recycling:

- **Counties and municipalities vary considerably in how they organize and administer residential recycling programs.**

Recycling collection around the state is a mix of county-run and city-run open and organized systems. The five Twin Cities metro counties that we visited delegate primary responsibility for residential recycling collection to their cities and townships. As shown in Table 3.1, about three-fifths of the 150 cities and townships in these counties have organized residential recycling collection (where one or more haulers have contracts to serve an entire community) and about two-fifths have open collection (where residents individually choose among competing haulers). In some communities with organized garbage collection, companies that bid for residential garbage hauling contracts have to include recycling collection in their bids and provide both services. Other organized collection communities solicit separate bids for garbage and recycling collection. Some cities with open garbage collection (e.g., St. Paul) have contracted for

Table 3.1: Organization of Residential Recycling Collection in Five Metro Counties, 2001

County	Number of Cities and Townships With: Organized Collection Via Contracts With Private Haulers	Number of Cities and Townships With: Open Competitive Collection by Private Haulers	Total
Anoka	10	11	21
Dakota	2	32	34
Hennepin	41	4	45
Ramsey	15	2	17
Washington	24	9	33
TOTAL	92 (61%)	58 (39%)	150

SOURCE: County solid waste management plans and Office of the Legislative Auditor interviews with county solid waste administrators.

recycling collection. Other cities with open garbage collection require all garbage haulers, as a condition of obtaining a license, to provide recycling collection.

As Table 3.2 shows, variation among outstate counties is even greater because both counties and municipalities are involved in recycling collection. Four of the ten outstate counties that we visited only have organized recycling collection, either through the county or through cities. Olmsted County and the Western Lake Superior Sanitary District (WLSSD) have open recycling collection throughout the county. The remaining four counties have open collection in some parts of the county and organized collection in other parts. Outstate counties tend to take responsibility for recycling collection in rural areas and delegate responsibility for recycling to their larger cities. In the counties we visited, many

Table 3.2: Organization of Residential Recycling Collection in Ten Outstate Counties, 2001

	County Controlled Services			City and Township Controlled Services		
County	Organized: County-Run	Organized: Contract With Hauler	Open Collection	Organized: City-Run	Organized: Contract With Hauler	Open Collection
Beltrami		X				X
Lyon		X		X		
McLeod		X			X	
Olmsted[a]			X			
Otter Tail	X			X	X	
Polk		X		X	X	X
St. Louis		X		X	X	
Stearns				X	X	X
WLSSD			X			
Wright					X	X

[a]Olmsted County controls recycling collection for its 13 rural drop-off sheds, a very small portion of recycling volume in the county.

SOURCE: County solid waste management plans and Office of the Legislative Auditor interviews with county solid waste administrators.

of the larger outstate cities such as St. Cloud, Crookston, East Grand Forks, Fergus Falls, and Marshall, have organized collection, but some large cities, such as Duluth and Rochester, have open collection.

In 2000, a majority of the state's population lived in areas served by residential curbside recycling.

Counties provide an opportunity to recycle through a combination of curbside collection, recycling centers, and drop-off locations.[2] According to county SCORE reports for 2000, residential curbside recycling was offered in 188 metro area cities and townships, comprising 91 percent of the metro population, and in 577 outstate communities, comprising 58 percent of the outstate population. Only nine counties reported having no communities with curbside recycling. In addition to curbside collection, all counties have recycling centers, drop-off containers, or sheds where people can bring material for recycling.[3] We talk more about the prevalence of curbside recycling collection in Chapter 4.

To serve rural residents, counties rely on a system of recycling drop-off sites, such as this one in northeast Minnesota.

Counties that delegate responsibility for recycling to cities and townships usually provide funding to them. According to county SCORE reports, 6 of 7 metro counties and 20 of 80 outstate counties reported that they provided grants to municipalities for SCORE services in 2000. As noted in Chapter 2, county grants to local governments totaled about $7 million in 2000. Of that amount, about three-quarters was earmarked for recycling. Among the counties we visited, Wright and Anoka counties tied the grant to a city or township's success in

2 As noted in Chapter 1, state law requires that all citizens be given the opportunity to recycle, either through drop-off locations or curbside collection. By law, metro cities with 5,000 or more people and outstate cities with over 20,000 people must have curbside collection.

3 Recycling centers are open at least 12 hours per week 12 months per year and accept at least four broad categories of material. Sheds are unattended containers that are periodically collected.

achieving recycling goals.[4] All five metro counties that we visited distributed grants to cities and townships based on population or number of households. Polk and Lyon counties each distributed funds to single cities that ran their own recycling programs. Stearns and Dakota counties gave grants to cities for special projects.

Counties collected a broad variety of materials for recycling in 2000, as shown in Table 3.3. All counties reported collecting paper, metal, plastic, and materials banned from landfills and all but one reported collecting glass; however, counties varied in the types of paper and plastic they collected. Also, not all counties reported collecting all of the problem materials that the state bans from landfills, such as electric appliances and antifreeze. A minority of counties collected food waste and carpet. Within counties, individual cities and private haulers may have their own specifications about which materials they collect and in what form.

Counties disagree on the extent to which residents should be required to separate the materials they recycle.

Communities vary in the extent to which they require citizens to separate the material they recycle. In some communities, citizens can mix all grades of paper and cardboard in a single container, but in others, citizens have to separate them. Likewise, some communities permit residents to commingle plastic, metal, and glass beverage containers while in others the materials must be kept separate. The advantage of permitting commingled material is that it is more convenient for citizens to recycle if they do not have to concern themselves with sorting material. County officials using commingled recycling streams believe that more people choose to recycle when commingling is permitted. On the other hand, advocates of greater source separation argue that greater separation reduces contamination and increases the value of the product. They contend that higher sale value increases the sustainability of recycling. Representatives from the large hauling firms, however, told us that the sorting technology their firms use to separate materials collected in commingled streams results in a high quality, high value product.

Commercial, Industrial, and Institutional Recycling

While counties, cities, and townships vary in whether they have open or organized recycling collection for residences,

- **Commercial, industrial, and institutional recycling usually operates under an open collection system.**

Laws requiring that individuals have the opportunity to recycle and most ordinances requiring garbage haulers to offer recycling services do not usually

4 In Wright County, the 2001 goals were for cities to recycle 43 pounds and for townships to recycle 35 pounds per household per month. Cities and townships that met the goal received $250 per quarter plus $30 per ton recycled. Those that did not meet the goal received $250 per quarter plus $20 per ton recycled. Anoka County requires cities and townships to meet minimum recycling goals (currently 177 pounds per person per year) in order to receive their grants. All Anoka cities and townships received grants in 2000.

Table 3.3: Material Recycled, 2000

Type of Material	Number of Counties Recycling	Percentage of Counties Recycling	Tons Recycled (Thousands)	Percentage of Total Tons Recycled
Paper Products				
Corrugated Cardboard	86	99%	341	15%
Newsprint	84	97	182	8
Magazines and Catalogs	72	83	37	2
Office Paper	67	77	38	2
Mixed Paper	52	60	220	10
Phone Books	46	53	3	<1
Computer Paper	9	10	2	<1
Other Paper	26	30	40	2
Total Paper Products	87	100	864	38%
Metal				
Aluminum Cans	86	99	32	1%
Steel and Tin Cans	82	94	26	1
Commingled Aluminum and Steel Cans	40	46	24	1
Other Ferrous and Non-Ferrous Metal	81	93	242	11
Total Metal	87	100	324	14%
Glass				
Food and Beverage	84	97	108	5%
Other Glass	15	17	37	2
Total Glass	86	99	145	6%
Plastic[a]				
Low Density Polyethylene (LDPE)	28	32	1	<1%
High Density Polyethylene (HDPE)	37	43	3	<1
Polyethylene Terephthalate (PET)	32	37	3	<1
Polystyrene (Styrofoam)	11	13	3	<1
Mixed Plastic	74	85	36	2
Other Plastic	22	25	1	<1
Total Plastic	87	100	47	2%
Materials Banned from Landfills				
Antifreeze	31	36	<1	<1%
Electronic Appliances	29	33	3	<1
Fluorescent and HID Lamps	78	90	<1	<1
Household Hazardous Waste[b]	61	70	1	<1
Major Appliances	86	99	34	1
Used Oil	87	100	8	<1
Used Oil Filters	86	99	2	<1
Vehicle Batteries	87	100	29	1
Tires	87	100	17	1
Total Banned Material	87	100	95	4%
Other				
Food Waste	29	33	158	7%
Latex Paint	56	64	1	<1
Pallets	38	44	57	3
Carpet	5	6	< 1	<1
Textiles	48	55	15	1
Unspecified or Other	32	37	559	25
Total Other	80	92	791	35%
TOTAL	87	100	2,265	100%

NOTE: Counties (and cities and haulers within counties) differ in the way they collect and report recycled material. For example, some counties may report aluminum cans separately, while others may report it as commingled aluminum and steel cans. Similarly, computer paper is only collected and reported as a separate category of paper in a few counties, but may be collected as part of a mixed paper stream in other counties.

[a]LDPE is used for plastic film including wrapping films, sandwich bags, and grocery bags. HDPE is used for milk, water, and detergent bottles and for toys. PET is used for soft drink bottles and medicine containers. Polystyrene is used for coffee cups, carry-out food boxes, packing "peanuts," and insulating materials.

[b]Counties that report collecting no household hazardous waste have agreements with neighboring counties to collect their household hazardous waste.

SOURCE: Office of the Legislative Auditor analysis of county SCORE report data.

apply to nonresidential enterprises.[5] Businesses (including multi-family housing units), industries, and institutions (such as governments, schools, and hospitals) must manage their own waste, either by self-hauling (using in-house employees) or by contracting with a private hauler for collection and disposal of their garbage. Similarly, these entities may either haul their own recycling, contract with a hauler for recycling collection, or choose not to recycle.

Recognizing that there is an opportunity to reduce the amount of garbage to be managed and increase the amount of recycling from commercial, industrial, and institutional enterprises, counties have developed strategies to increase the amount of material that businesses recycle. All 7 metro counties and 61 outstate counties (76 percent) reported that they had specific programs to promote commercial and industrial recycling in 2000. Among the counties we visited, most provide educational material specific to businesses and will provide one-on-one consultation if requested. These programs are aimed at encouraging businesses to reduce the amount of waste they produce as well as to recycle. We discuss waste reduction programs later in this chapter.

Processing and Marketing of Recycled Material

As with other aspects of recycling:

- **Counties and municipalities vary in the extent to which they are involved in processing and marketing recycled material.**

However, regardless of their level of involvement in marketing recycled material:

- **Counties have a limited amount of influence in developing markets and setting prices for recycled products.**

In counties and cities with open collection, haulers are generally responsible for marketing recycled material, and they keep the revenues generated from material sales. Several of the large haulers own material recovery facilities where material is sorted (by using magnets and hand picking off an assembly line) and prepared for market by crushing, baling, shredding, or otherwise condensing it. Responsibility for marketing recycled material and the disposition of revenue from material sales in communities with organized collection is determined by the terms of the contract. Almost all counties operate or contract with a private company to operate recycling centers where individuals and businesses can bring material for recycling. Many of these centers also serve as material recovery facilities. Material recovery facility operators sell the processed material to a material broker or directly to companies that can reuse it.

Some counties process and market recycled materials themselves while others rely on the private sector.

The mix of public and private material processing is related to each county's circumstances and preferences. Counties that process and market recyclable material themselves report that they have more control over what happens to recycled goods and that revenue from material sales helps to offset collection costs. St. Louis and McLeod counties, unhappy with the services and prices of privately-owned material recovery facilities in their counties, have recently

5 An exception is WLSSD, which has an ordinance requiring businesses to recycle.

At the St. Louis County material recovery facility, shown here, a magnet separates steel cans and workers hand-separate glass, plastic, and aluminum containers from a commingled recycling stream.

established their own facilities. Polk County, which operates a waste-to-energy incinerator as part of a five-county consortium, recently installed equipment to mechanically remove material that could be recycled rather than burned. The revenue from the sale of these materials helps reduce the net cost of operating the facility. Ramsey and Dakota counties, on the other hand, recently closed their recycling centers because they felt that the facilities duplicated services already being offered by the private sector.[6]

While waste haulers and counties are currently able to sell the recycled material they collect, finding buyers has been a problem in the past.

According to county SCORE reports, 2 of 7 metro counties (29 percent) and 39 of 80 outstate counties (49 percent) received revenues from the sale of recycled material in 2000. Material sales accounted for 4 percent of SCORE revenues in metro counties and 13 percent in outstate counties in 2000. Otter Tail County, which runs its own recycling program, received 63 percent of its 2000 revenues (about $540,000) from the sale of recycled materials, the highest in the state.

County officials and representatives of the garbage hauling industry said that they are currently able to sell recycled material. This has not always been the case. In the early 1990s, for example, counties and private haulers had to temporarily store large quantities of newsprint or take newsprint to landfills because they could not find buyers. Several county officials commented that shipping plastics is not cost-effective. In fact, one county official told us that his county has had to pay a company to take the county's recycled plastic. County officials also told us that

6 Instead of operating a material recovery facility, Ramsey County has set up a recycling markets fund. During periods of depressed markets for recycled goods, the fund can pay for storage of recycled material until the market recovers.

markets for recycled goods are subject to price fluctuations and that current prices are low compared to a few years ago.

Counties may use SCORE funds to develop markets for recycled products. However, as shown in Chapter 2, county expenditures on market development in 2000 were less than 1 percent of total SCORE expenditures. Most county officials told us that their counties have a limited ability to develop markets for recycled goods. Some counties have procurement policies that require or give preference to recycled material for use in county offices. Some counties are using recycled glass in road aggregate for constructing county roads, and the metro counties are working on a plan to require the use of recycled paint in government buildings.[7] But county officials do not think these efforts will influence prices for recycled goods. They look to OEA to provide a statewide effort to find more uses for recycled material.

WASTE REDUCTION

As discussed in Chapter 1, waste reduction is at the top of Minnesota's waste management hierarchy, and the SCORE legislation permits spending on waste reduction activities. To this end:

- **Counties promote waste reduction, but they feel that state and national efforts are needed to make significant gains.**

For the commercial sector, counties we visited use two general strategies to promote recycling and waste reduction. First, in some counties, staff conduct "waste audits" of companies and organizations. They visit facilities and provide technical assistance, pointing out ways the company could reduce waste and recycle more. They point out how waste reduction and recycling can save companies money by reducing garbage disposal costs and county service fees for garbage disposal (if the fees are volume based). Counties vary in how proactive they are in soliciting business participation in waste audits. Some counties said they only do waste audits when companies request one, and some counties told us that time and staff constraints limit the number of waste audits they can do. Overall, the counties we visited reported doing very few waste audits in 2000.

A second strategy that some counties use is a material exchange program through which companies and individuals can list material they do not need in a publication or on a website and other companies or individuals who need the material can take it free of charge. Counties may also permit material exchanges at their recycling centers. For example, some counties allow individuals to take used paint that others have brought in.

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7 According to 2000 SCORE report data, 12 counties (14 percent) often specify recycled material when putting out a bid and 48 counties (55 percent) sometimes specify recycled material. Eighty counties (92 percent) said they procure recycled paper, 71 (82 percent) said they use recycled envelopes, 32 (37 percent) use recycled paint, 17 (20 percent) use recycled traffic cones, and 19 (22 percent) used recycled glass in road aggregate in 2000.

Use of materials exchanges, in which companies and individuals can trade unwanted materials, is a common waste reduction strategy. Shown here is a product reuse and exchange site at a Polk County household hazardous waste facility.

OEA is required by statute to provide technical assistance to reduce the amount of hazardous and industrial waste generated by industry and to prevent pollution.[8] To meet this requirement, OEA established the Minnesota Technical Assistance Program. OEA issued a grant to the University of Minnesota Extension Service to run the program, which provides industry-specific assistance on a variety of solid waste issues and runs a statewide materials exchange program. OEA also provides financial assistance to Minnesota Waste Wise, a Minnesota Chamber of Commerce educational program to promote recycling and waste reduction by businesses. Finally, some counties are using a program called Waste Watchers, through which representatives of businesses that do a good job recycling and reducing waste serve as mentors and advisors for other companies.

Counties feel limited in their ability to reduce waste generation in the face of national economic trends, industry packaging practices, and consumer preferences.

The counties we visited do not have these types of waste reduction programs for residences. Rather, counties use their educational material to promote waste reduction by encouraging individuals to purchase material in bulk or in reusable containers and by suggesting uses for items that people might normally throw away.

As discussed in more detail in Chapter 4, officials in the counties we visited feel limited in their ability to reduce waste generation in the face of national trends such as the economic boom of the 1990s, the growth in junk mail, and consumer preferences for buying things in small packages rather than in bulk. County officials believe that broad issues like packaging can best be addressed at the state or national level.

8 *Minn. Stat*. (2001), §§115A.152 and 115D.04.

HOUSEHOLD HAZARDOUS WASTE

Household hazardous waste is waste that is corrosive, flammable, toxic, or otherwise fits Minnesota Pollution Control Agency (MPCA) criteria for hazardous waste and is generated from household activities.[9] It poses a significant environmental threat because of its toxicity. As a result, state law requires that MPCA establish a statewide program to manage household hazardous waste and that counties include a section on household hazardous waste management as part of their solid waste management plans.[10] The agency provides technical assistance and grant funding to counties that administer household hazardous waste programs. Counties may also use SCORE funds to manage household hazardous waste and other problem materials.[11] Indeed:

- **Counties place a relatively high priority on management of household hazardous waste.**

As discussed in Chapter 2 (Figure 2.4), household hazardous waste programs constituted 33 percent of SCORE spending in metro counties in 2000 and 15 percent in outstate counties. According to SCORE reports, all 87 counties provided their residents with educational material on the reduction, identification, and proper management of household hazardous waste in 2000. Most of the solid waste administrators in the counties we visited said that managing household hazardous waste was one of their county's top solid waste management priorities.

Because reducing the toxicity of waste is a high priority, most counties have programs to manage household hazardous waste.

According to county SCORE reports, 78 counties (90 percent) operated or cooperated in a household hazardous waste collection facility in 2000, and 73 counties (84 percent) said they held at least one household hazardous waste collection event during the year. Some outstate counties form partnerships with neighboring counties to share a regional collection facility, but all of the counties we visited also accept and temporarily store household hazardous waste at a recycling center, transfer station, or other county facility. As shown earlier in Table 3.3, most counties also collect problem materials such as tires and appliances, sometimes charging a small drop-off fee for the service.

To help contain costs, counties use statewide disposal contracts negotiated by MPCA. Several solid waste administrators told us that the statewide disposal contract has made managing household hazardous waste more affordable for their counties.

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9 *Minn. Stat.* (2001), §115A.96, subd. 1 (b).

10 *Minn. Stat.* (2001), §115A.96, subds. 2 and 6.

11 Problem materials are materials that can cause health or environmental damage or processing problems when deposited in landfills or waste processing facilities. Examples include antifreeze, appliances, tires, and fluorescent bulbs. *Minn. Stat.* (2001), §115A.03, subd. 24a.

YARD WASTE AND COMPOSTING

Yard waste is garden waste, leaves, lawn cuttings, weeds, shrub and tree waste, and prunings.[12] State law prohibits mixing yard waste with mixed municipal solid waste, depositing yard waste in landfills, or processing it in any way other than composting.[13] Most programs to manage yard waste involve collecting and composting it. In Minnesota:

- **While all counties have programs for collecting and composting yard waste, yard waste programs do not represent a major commitment of resources in most counties.**

Yard waste composting is available statewide.

Yard waste composting is available throughout the state through a mix of public and private compost facilities with drop-off access and curbside yard waste pick-up. According to county SCORE reports, every Minnesota county had at least one yard waste drop-off site in 2000, with a total of 454 sites statewide. Curbside yard waste pick-up is more prevalent in metro counties than outstate. All of the seven metro counties and 53 out of 80 outstate counties (66 percent) had at least one curbside collection program for yard waste, with a total of 103 metro and 161 outstate yard waste curbside collection programs in 2000.[14] County officials estimated that 63 percent of the metro population and 38 percent of the outstate population were served by yard waste curbside collection. In some communities, households receive yard waste collection for free, while in other communities, residents have to pay a fee for each bag of yard waste collected. All but one county reported having a program to educate residents on yard waste management.

Reflecting the fact that many yard waste composting facilities are privately owned and operated, yard waste programs accounted for only 5 percent of metro county SCORE expenditures and 2 percent of outstate county expenditures in 2000. Ramsey County reported spending nearly $800,000 for its yard waste program in 2000, over five times more than any other county. The county owns and operates a network of seven yard waste sites that receive over 100,000 cubic yards of waste per year. The waste is composted, and the compost is made available free to citizens.

Some counties are expanding yard waste programs to include processing of other types of organic waste. As with other aspects of recycling and waste reduction, counties are taking different approaches to composting organic material, each requiring different systems and capital investment. For example, with the help of an OEA capital assistance grant, the city of Hutchinson built a $3.5 million composting facility that uses temperature-controlled boxes to compost food, paper, and other organic waste collected from city schools and businesses and from city residents through curbside collection. Hutchinson also bags and markets compost products. WLSSD invested about $675,000 in a lower-tech

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12 Minn. Stat. (2001), §115A.03, subd. 38.

13 Minn. Stat. (2001), §115A.931.

14 The SCORE report instructions define a yard waste curbside collection program as one offering a route-based collection system of yard waste from households at least twice per year.

Counties have been experimenting with composting programs that include paper, food, and other organic waste.

expansion of its yard waste composting facility to include source-separated, commercially-generated food waste. In 2001, the Solid Waste Management Coordinating Board, a joint powers board of six metro counties, sponsored a residential back yard food waste composting program, through which residents could purchase backyard compost bins at reduced cost. The Board's subsidy totaled about $290,000 for the 19,400 compost bins distributed.[15] The six counties absorbed staff costs associated with distributing the bins, and the Board and member counties shared additional promotion costs. Olmsted County helped initiate a food waste recycling program in the Rochester School District. About 16,000 students in 24 schools separate food waste in the school cafeterias, and the waste is sent to a local farm where it is fed to hogs.

The City of Hutchinson invested about $3.5 million in a facility that uses temperature-controlled containers to compost food, paper, and other organic waste.

ENFORCEMENT

State laws and county ordinances regulate some aspects of recycling and waste management. For example, state law bans certain materials such as tires, major appliances, and yard waste from landfills. It also requires counties to ensure that material collected for recycling is actually recycled. Counties implement these and other county requirements through ordinances, hauler contract provisions, and hauler licensing requirements. Hauler requirements may, for example, specify hauler obligations to collect recycled material or may prohibit the commingling of recycled material and garbage. Counties are responsible for enforcing their ordinances.

15 The Board's purchase price was about $30 per compost bin; residents paid $15 per bin.

We did not evaluate how well counties enforce state laws and county recycling ordinances, nor did we attempt to assess waste hauler compliance with recycling requirements. But, based on our interviews with county solid waste administrators, OEA officials, and representatives of the waste management industry:

- **Counties devote few resources to enforcing recycling ordinances because they do not think that many haulers improperly dispose of material collected for recycling or otherwise violate recycling requirements.**

Solid waste administrators in the counties we visited told us that they receive few complaints from citizens and most of them turn out to be unfounded or misunderstandings. For example, several counties reported that they occasionally received complaints that garbage haulers mixed recycled material with garbage. The ensuing investigations revealed that the haulers had compartmentalized trucks that kept recycled material and garbage separate.[16] County officials report that they have taken very few enforcement actions over the past year.

Counties report that they receive few complaints about haulers mishandling recycled material.

Some counties and municipalities require haulers to provide receipts from the recycling center or material recovery facility to ensure that material collected for recycling gets recycled. Lyon County includes enforcement provisions in its contracts with recycling haulers. For example, if a hauler fails to pick up all of the material placed on the curb for recycling, its payment is reduced by 25 percent. Counties with landfills regularly inspect them and have not found illegal dumping of recycled material or banned substances to be a problem.

According to waste industry representatives, haulers have little incentive to dump recycled material in landfills once they have collected materials set out for recycling. In addition to risking fines and other disciplinary action such as revocation of their licenses, haulers would lose the revenue they could get from selling the recycled material and would instead have to incur the costs to dispose of the material. As stated earlier, however, we did not independently assess waste hauler compliance and could not determine whether this logic holds true, particularly for those hauling companies that also own landfills.

EDUCATION AND PROMOTION

Counties may use SCORE grants to educate public and private entities on proper solid waste management. Overall:

- **Although education comprises a small percentage of SCORE expenditures, counties we visited consider education essential to their recycling and household hazardous waste programs.**

All seven metro counties and 90 percent of outstate counties reported education expenditures in 2000, and officials from all counties we visited said that education

16 In some cases, a hauler can get special permission to deposit recycled material in a landfill, such as when glass is contaminated with other material and cannot be recycled.

was essential to the success of recycling and household hazardous waste programs. As shown in Chapter 2, however, spending on education was modest in comparison to other SCORE categories, accounting for 6 percent of metro and 4 percent of outstate SCORE expenditures in 2000.

Most counties have developed education and promotion programs to encourage people to "reduce, reuse, and recycle"; provide information about what individuals may recycle, where and when they can recycle, and any special requirements; and inform the public about special recycling events such as household hazardous waste collections. Counties use newspaper advertisements, brochures, newsletters, utility bill inserts, television and radio advertisements, billboards, presentations to interested groups, and programs in the schools to disseminate the information. Some cities also provide information on recycling in newsletters sent to residents, and some require haulers to include material with their garbage bills. Anoka County worked with municipalities to produce a booklet called the *Recyclopedia* that is mailed to all county residents. Each booklet includes an insert specifically designed for each city and township, explaining what is collected at curbside recycling, listing drop-off sites, collection events, and other unique programs and events for that city. Other counties we visited had similar guides.

Counties use advertisements, brochures, newsletters, public presentations, and school programs to educate the public about recycling and waste reduction.

Education in the schools is an important element of county education efforts. Olmsted County, for example, has a long-standing educational program integrated into the fifth grade environmental curriculum. The curriculum includes distribution and classroom use of a quarterly newsletter called *Trash Talk*, site visits to the landfill, waste-to-energy incinerator, and compost site, and programs at a nature center. Ramsey and Washington counties jointly developed a "trash trunk" and an accompanying school curriculum that schools can use to demonstrate recycling, yard waste management, and household hazardous waste management.

As noted earlier, counties also provide technical assistance to businesses to help them generate less waste and recycle more. Some counties also work with businesses to obtain their assistance in promoting recycling programs and initiatives. For example, Stearns County worked with a car battery retailer to send out information to its customers on recycling used batteries. It also held a "composting day" with a topsoil company to explain composting techniques to homeowners. Olmsted County's waste reduction coordinator is a member of the local Chamber of Commerce and regularly attends Chamber events and uses the opportunity to make personal contacts and to educate businesses about waste reduction and recycling. The county also holds waste reduction workshops for businesses once a year and conducts waste audits upon request.

JOINT EFFORTS

While each county has individual autonomy over solid waste management, including SCORE:

- **Counties sometimes find that they can save money and improve service delivery by forming partnerships.**

One of the most visible and organized of these coordinated efforts is the Solid Waste Management Coordinating Board, a joint powers board for coordinating solid waste planning in the Twin Cities metro area. Six of the seven metro counties belong to the board, which sets policy priorities, goals, and outcome measures, and reviews county performance.[17] The board disburses SCORE block grants and compiles annual SCORE data for its six member counties. It also has sponsored pilot projects to increase recycling and to reduce waste generation. In the waste reduction arena, for example, member counties are each targeting commercial packaging waste in a different venue, including office buildings, malls, grocery stores, and light industrial facilities. Member counties will then share and apply successful practices.

To achieve economies of scale and meet common goals, some counties are combining efforts.

Several outstate counties have coordinated solid waste planning and recycling activities including Pope and Douglas counties in northwest Minnesota and the three counties in the St. Cloud area (Tri-County Solid Waste Commission). According to officials in the counties we visited, these coordinated efforts help achieve economies of scale, particularly regarding storing, packaging, and transporting household hazardous waste. For example, ten counties in northwest Minnesota belong to the Northwest Minnesota Household Hazardous Waste Joint Powers Board. The board has a processing center in Bagley that is open daily to collect household hazardous waste. Similarly, WLSSD operates a household hazardous waste collection facility that jointly serves WLSSD and seven northeast Minnesota counties. Many of these counties transport their material to WLSSD for final disposal. WLSSD also owns and operates a mobile unit used for collection events throughout the region. Other regions have similar joint powers agreements to manage household hazardous waste.

Several metro and outstate counties have entered into contracts to construct refuse-derived fuel and waste-to-energy facilities and supply garbage to them. For example, five northwest Minnesota counties agreed to supply garbage for the Polk County waste-to-energy incinerator. That commitment helped the counties avoid sending all of their garbage to landfills and at the same time ensured that the facility would be able to process enough garbage to pay off its construction bonds. Similarly, several metro and nearby counties have contracts to supply garbage to refuse-derived fuel facilities in Elk River and Newport.

17 The board was established with all seven metro counties, but Scott County recently withdrew.

4 Effectiveness

SUMMARY

Minnesota recycles about 40 percent of the waste it generates. More waste is diverted through composting and other waste reduction activities. Still, Minnesota has not met the Legislature's goal of significantly reducing the amount of waste produced. Rather, Minnesota's waste generation continues to grow at a rate faster than its population. A recent study of what Minnesotans are still throwing away showed that more than half of discarded municipal solid waste is comprised of recyclable materials (primarily paper) and organic waste. Because this information on discarded waste is important for assessing performance and targeting future efforts, we recommend that OEA conduct such studies periodically.

In this chapter, we address the question:

- **How effective are Minnesota's recycling and other waste abatement programs?**

Because of its multidimensional nature, SCORE effectiveness can be measured in a variety of ways. We did not assess the overall environmental or economic benefits of recycling and waste reduction. Rather, we focused more specifically on the SCORE legislation and considered both the Legislature's recycling and waste reduction goals and SCORE's general intent to promote waste abatement activities. Specifically, we assessed SCORE's effectiveness along four dimensions:

1. To what extent do counties engage in the array of activities SCORE was intended to promote?
2. To what extent have counties met the recycling rate goals?
3. To what extent are Minnesotans still discarding waste that could be reduced, reused, or recycled?
4. Has Minnesota met the Legislature's waste reduction goal?

As discussed in the Introduction, we accepted the waste management hierarchy at face value and did not assess the merits of the state's preference for waste reduction and recycling over municipal solid waste processing and landfilling. Also, due to time and data constraints, we did not assess the relative merits of different county approaches to implementing SCORE programs.

PREVALENCE OF SCORE PROGRAMS

As discussed in Chapter 1, state law establishes a list of activities for which SCORE funds may be used. Based on our analysis of county SCORE reports, interviews with Office of Environmental Assistance (OEA) officials, interviews with stakeholder groups, and site visits to 15 counties, it is clear that:

- **Recycling and other SCORE programs are prevalent throughout the state.**

As described in Chapters 2 and 3, counties have implemented an array of programs that SCORE was intended to promote and have targeted most SCORE spending on recycling and household hazardous waste programs.

Residential recycling is a well-established component of Minnesota's solid waste management system.

Based on our assessment of county SCORE reports and interviews with county officials and representatives of recycling stakeholder groups and private industry, we conclude that residential recycling has been institutionalized as part of Minnesota's solid waste system. Overall, most counties we visited consider their residential recycling programs to be well established and a service highly valued by their citizens. More residents have access to curbside recycling collection than required under the SCORE legislation, which requires curbside collection in metro cities of 5,000 or more and in outstate cities of over 20,000. According to county estimates, most metro residents and over half of outstate residents live in communities with curbside recycling collection. Curbside collection in outstate counties we visited is available in communities with populations much smaller than 20,000. As shown in Table 4.1, McLeod and Wright counties, for example, do not have any cities with populations greater than 20,000, but residents in all their cities, with populations ranging from 114 to 13,080, have access to curbside recycling. In other counties, such as Otter Tail and Polk, curbside collection is available in some small cities, but is not as widespread. All outstate counties report the use of drop-off locations to serve small city and rural residents.

Similarly, household hazardous waste programs are also prevalent throughout the state and, among the counties we visited, were considered a very high priority. Officials in the counties we visited said that household hazardous waste programs were a key priority in their counties because of the role these programs play in reducing the toxicity of waste. In addition, all counties report having either publicly or privately operated yard waste drop-off facilities, and most reported engaging in waste reduction education efforts.

Private sector entities apparently have also invested in Minnesota recycling ventures. According to representatives from the waste hauling industry, private-sector businesses have made substantial capital investments in an infrastructure, including collection trucks and recycling processing centers, to support recycling in Minnesota. Two large hauling companies, for example, told us that they have invested about $37.2 million in the metro area—about $25.6 million in recycling materials recovery facilities and $11.6 million in recycling collection trucks and containers.[1]

1 We did not independently verify these data.

Table 4.1: Availability of Curbside Recycling Collection in Outstate Communities, Select Counties, 2000

County and Population	Cities With Populations Over 20,000	Availability of Curbside Recycling	Estimated Percentage of County Population With Access to Curbside Recycling
Beltrami 39,650	None	Bemidji (population 11,917) is the only city with curbside collection.	30%
Lyon 25,425	None	Marshall (population 12,735) and 12 other cities or townships with populations ranging from 61 to 2,268.	80
McLeod 34,898	None	Hutchinson (population 13,080) along with 8 cities or townships with populations ranging from 114 to 5,453.	70
Olmsted 124,277	Rochester (86,806)	Virtually all county residents have access to curbside recycling.	98
Otter Tail 57,159	None	Fergus Falls and Perham, populations of 13,471 and 2,559, respectively.	28
Polk 31,369	None	Nine small cities and a township ranging in population from 62 to 8,192.	61
Stearns 133,166	St. Cloud[a] (46,734)	All county residents have access to curbside recycling.	100
St. Louis 85,565	None	Hibbing (population 17,071) and 6 other cities with populations ranging from 622 to 9,157.	47
Western Lake Superior Sanitary District 114,963	Duluth (86,918)	Duluth and the cities of Proctor and Hermantown, with populations of 2,852, and 7,448, respectively.	85
Wright 89,986	None	16 cities with populations ranging from 204 to 10,097 and 13 townships with populations ranging from 925 to 4,139.	93

[a]An additional 12,373 St. Cloud residents live in Benton and Sherburne counties.

SOURCE: Office of the Legislative Auditor analysis of county SCORE report data, county solid waste plans, interviews with county solid waste officials, and 2000 U.S. Census data.

RECYCLING RATES

The Legislature set recycling rate goals of 50 percent for metropolitan counties and 35 percent for outstate counties. Recycling rates are calculated using a base rate (basically tons of waste recycled divided by tons of waste generated) plus recycling rate credits of up to 8 percent for yard waste management and waste reduction activities. Overall:

- **Recycling has kept pace with rising waste generation and many counties meet or exceed state recycling goals.**

Currently, Minnesota's base recycling rate is 40 percent.

As shown in Table 4.2, the statewide recycling rate increased from 36 percent in 1991 to 48 percent in 2000. Most of the gains made since 1995 can be attributed to increases in the average yard waste and source reduction credits; the base recycling rate during this period was basically stable. However, maintaining a stable recycling rate since 1995 required more recycling volume, because the total amount of municipal solid waste generated continued to increase. From 1995 to 2000, total waste generated increased from 4.6 million tons to 5.6 million tons, or by about 24 percent, and total tons recycled increased from 1.8 million tons to 2.3 million tons, or by about 28 percent.

Metro counties, on average, met the 50 percent goal in 1997 but have achieved a recycling rate of 48 percent or better since 1994. Outstate counties, on average, have exceeded the 35 percent goal since 1994. Over time, recycling rates for

Table 4.2: Recycling Rates, 1991-2000

	Recycling Rate									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
All Counties										
Base Recycling Rate	36%	39%	40%	42%	39%	39%	40%	40%	40%	40%
Average Yard Waste and Source Reduction Credit	N/A	N/A	N/A	2	6	7	6	6	7	8
Total Recycling Rate	36%	39%	40%	44%	45%	46%	46%	46%	47%	48%
Metro Counties										
Base Recycling Rate	43%	46%	46%	47%	42%	42%	41%	41%	40%	41%
Average Yard Waste and Source Reduction Credit	N/A	N/A	N/A	2	8	8	8	8	8	8
Total Recycling Rate	43%	46%	46%	49%	49%	49%	50%	49%	48%	49%
Outstate Counties										
Base Recycling Rate	25%	29%	31%	35%	34%	36%	38%	39%	40%	40%
Average Yard Waste and Source Reduction Credit	N/A	N/A	N/A	2	5	5	5	6	7	7
Total Recycling Rate	25%	29%	31%	37%	39%	41%	43%	45%	47%	47%

NOTE: Beginning in 1994, counties could receive a credit of up to 3 percent for engaging in certain waste reduction program activities. Beginning in 1995, counties could receive a credit of up to 5 percent for yard waste management activities, which replaced weight estimates for yard waste generation and composting. Base rate and average credit may not add to total due to rounding.

SOURCE: Office of Environmental Assistance recycling rate calculations.

metro and outstate counties have converged. As Table 4.2 shows, outstate counties have increased both their base recycling rates and average recycling rate credit.

In 2000, 5 of 7 metro counties and 50 of 80 outstate counties met their respective recycling rate goals. Among the 50 outstate counties that met the 35 percent goal, 18 met or exceeded the metro 50 percent standard as well.

Minnesota recycles more than most other states.

Although measurement inconsistencies among states preclude detailed comparisons, Minnesota's recycling rate compares favorably to rates reported by other states. Based on nationwide results of 1999 and 2000 surveys done by *Biocycle* magazine, Minnesota's recycling rate ranked sixth highest among the 49 states reporting.[2] Survey results also show that Minnesota is one of many states that provides some state funding for recycling and related activities. Among 44 states reporting, 40 said the state provided funding support for recycling.

Based on our experience with the data and interviews with state and county officials:

- **Recycling rates are a limited measure of effectiveness.**

As a performance measure, recycling rates should be used cautiously, particularly when comparing small rate changes from year to year or when comparing rates among individual counties. Based on our review of SCORE reports and interviews with county officials, recycling rate calculations are influenced by a number of measurement issues, including the following:

- According to solid waste officials in most counties we visited, recycling and garbage tonnage data used as the basis of recycling rates may be suspect or incomplete, particularly for the commercial sector. Commercial enterprises that self-haul (that is, use in-house recycling or hauling rather than contracting with a different firm) are not required to report their waste data to counties. Differences in recycling rates among counties or from one year to the next may be the result of receiving or not receiving recycling reports from these businesses.

- County officials estimate the amount of material recycled for some commercial entities instead of using actual counts. In 2000, for example, about 27 percent of the total tons recycled reported by counties were estimated weights. Furthermore, counties do not generally verify documented tonnage data reported by haulers.

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2 Nora Goldstein and Celeste Madtes, "12th Annual Biocycle Nationwide Survey: The State of Garbage in America," *Biocycle*, November 2000, 40-48, 79. Recycling rates for some states were from the 1999 survey: Jim Glenn, "11th Annual Biocycle Nationwide Survey: The State of Garbage in America," *Biocycle*, April 1999, 60-71. OEA officials recommended the *Biocycle* survey as the best available source of comparative data. The United States Environmental Protection Agency also uses the survey as its source of comparative recycling rate data.

Recycling rate data is inconsistent and should be used cautiously.

- Deciding what is and is not SCORE-related for the purposes of reporting to OEA is not always clear, and reporting is inconsistent among counties. For example, in 1992, OEA revised its definition of recycled material to exclude byproducts of industrial processes, but granted exceptions to some counties. As a result, some counties benefit from counting these products when other counties cannot. County officials also told us that isolating SCORE expenses was, in some areas, difficult because counties operate solid waste management in an integrated system. Allocating staffing and other administrative expenses between SCORE and non-SCORE programs is particularly difficult in small counties because staff have responsibilities in both categories. As a result, counties may differ in how they allocate these types of crosscutting expenses.

- For annual reports, OEA only requires each county to account for its SCORE grant and its 25 percent matching funds. Some counties, including Dakota County, report according to this minimum standard even though they have SCORE expenses in excess of the minimum match.

Residential curbside recycling is well established in Minnesota.

Solid waste officials said that they generally do not use recycling rates to manage day-to-day operations and that reliance on recycling rates creates an incentive to improve reporting, not programs. Recycling rates alone do not provide the kind of information needed to determine what factors are influencing the recycling volume or the best targets of opportunity to make improvements. They acknowledged, however, that recycling rates are useful in other ways. Recycling rate goals, for example, motivated counties to get recycling programs up and running and, for counties still striving to meet the goals, to continue to make improvements. The recycling rate concept is also commonly understood, which makes it a useful way to communicate with other government officials, such as

county boards, and to compare Minnesota to other states. Still, many of the counties we visited need additional information to manage recycling operations and assess performance. As we discuss in more detail below, officials that we interviewed in metro counties and some outstate counties find waste composition data to be a more meaningful and useful performance measure.

County waste management reporting requirements could be revised to reduce redundancy and improve usefulness to policymakers.

Counties face redundant solid waste reporting requirements. In addition to the SCORE reporting requirement, counties, cities, and townships are also required by statute to report solid waste fee revenue and associated expenses to the Office of the State Auditor.[3] According to the State Auditor, however, the data have not been compiled in an electronic database since 1997 and have not been used by a state agency since 1999, primarily because the statutes requiring agency review of the data were repealed. For these reasons and because elements of the State Auditor's solid waste reporting requirement are redundant with county SCORE reports submitted to OEA, the State Auditor has requested repeal of the statute requiring counties and cities to submit data to the State Auditor.

According to legislative staff and OEA officials, policymakers involved in solid waste administration have an immediate need for comprehensive data on solid waste management financing, including county and city revenues and expenses. While OEA's SCORE reporting form collects detailed information on SCORE activities and financing, the State Auditor's reporting forms (one each for cities and counties) are more inclusive of data on the full spectrum of solid waste activities. In our view, the two reporting requirements should be combined into a unified process for collecting comprehensive data on revenues and expenditures associated with solid waste management. Doing so would both ease the local reporting burden and facilitate decision-making by providing a more complete picture of Minnesota's solid waste management system.

Nevertheless, details regarding the specific data to be collected, who should provide it, and how it should be compiled and analyzed need to be clarified before proceeding. Stakeholders—those who will use the data—need to first agree on the solid waste financing questions that they need answered and whether they need data occasionally or on an ongoing basis. Developing a common understanding of these needs will determine how the data collection effort should be structured and what the costs will be. For instance, OEA already has a process in place to collect SCORE data from counties. It does not collect data from cities, and costs associated with the data collection would rise if it were required to build the capability to do so. In addition, OEA does not have authority to audit local governments, which, depending on the needs of data users, may be a factor in determining which agency should have lead responsibility for the effort.

RECOMMENDATION

By the end of 2002, the Office of Environmental Assistance should determine how best to streamline waste management data reporting and recommend to the Legislature any needed statutory changes.

3 *Minn. Stat.* (2001), §115A.929.

WHAT MINNESOTANS ARE STILL THROWING AWAY

In 1999, the Solid Waste Management Coordinating Board, the Minnesota Pollution Control Agency, and OEA sponsored a study to develop a statistically reliable estimate of the composition of Minnesota's discarded trash.[4] Statewide estimates from this study and interviews with county officials show that:

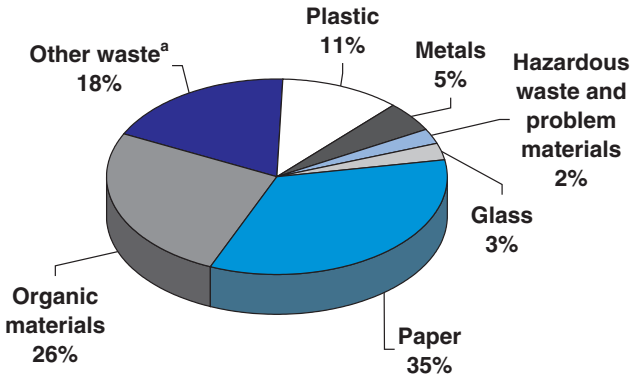
- **Minnesotans are still discarding a significant amount of material that could be reduced, reused, recycled, or composted.**

As shown in Figure 4.1, about 34 percent of Minnesota's garbage (residential and commercial), by weight, was paper, and an additional 26 percent was organic waste. Although a small percentage of volume by weight, household hazardous waste and problem materials were also present. These materials are of particular concern, given Minnesota's emphasis on reducing the toxicity of waste.

In 1999, about 60 percent of Minnesota's garbage was paper and other organic waste, much of which could have been diverted from the waste stream.

Much of the discarded paper fell into common recycling categories, and about half of all organic material discarded was food waste. Results of the waste composition study show that several subcategories of waste identified in the study are readily recyclable, including corrugated cardboard, recyclable mixed paper, office paper, and boxboard. Most existing recycling programs already accept

Figure 4.1: Composition of Municipal Solid Waste, 1999



NOTE: Data are statewide and include both residental and commerical waste.

[a]Other waste includes textiles, carpets, sharps and infectious waste, rubber, construction debris, and household bulky items.

SOURCE: Solid Waste Management Coordinating Board, Minnesota Pollution Control Agency, and Minnesota Office of Environmental Assistance, *Statewide MSW Composition Study* (St. Paul: R.W. Beck, 2000), 1-10.

4 Solid Waste Management Coordinating Board, Minnesota Pollution Control Agency, and Minnesota Office of Environmental Assistance, *Statewide MSW Composition Study* (St. Paul: R.W. Beck, 2000).

these materials. Paper is also a good waste reduction target, through such techniques as two-sided printing, use of electronic communication, and junk mail reduction.

The 1999 waste composition study results show little change from findings in a similar study done in 1992. One change deemed significant by the 1999 study's authors was a decrease in the proportion of paper in the waste stream, from 40 percent in 1992 to 34 percent in 1999.[5] The decrease in paper was offset by small percentage increases in a variety of other categories.

The study results were statistically reliable at a statewide level and for metro counties, but the sample data were insufficient to generate reliable estimates for outstate counties. The three outstate facilities included in the study managed less than 9 percent of outstate waste. Further, sampling was insufficient to make separate estimates for outstate residential and commercial waste.

Although Minnesota is one of the top recycling states, much of the garbage that is processed or landfilled could be recycled or composted.

Counties use formal and informal waste composition studies at the local level to target education and intervention programs, both for the community as a whole and for specific waste generators. The Western Lake Superior Sanitary District, for example, monitored loads being delivered to its transfer station tip floor during the summer of 2000, identified commercial waste generators not complying with the local ordinance banning recyclables from garbage, and followed up with hauling companies and businesses found to be noncompliant. Similarly, Washington County recently had a consultant do an "eyeball" tip floor assessment to watch for problem loads being brought in from commercial sources and to

5 The authors deemed a difference to be significant if the 1992 mean was outside the confidence interval surrounding the 1999 mean.

identify the source company. County staff then contacted the firms to talk about the specific issue identified by the consultant. They also used the data on a broader level to identify problem materials that might be addressed by industry or on a regional basis. According to the Solid Waste Management Coordinating Board master plan, waste stream analysis is "a critical step in providing information on the types and quantities of various materials in the mixed waste stream. Three key program areas, source reduction, recycling, and toxicity reduction, can be addressed through waste sorts or other analysis efforts that measure the amount of targeted waste, recyclables, and household hazardous waste remaining in the mixed waste stream."[6]

Knowing what is still being thrown away is important for assessing progress and targeting programs.

Although ad-hoc waste composition studies done at a local level meet some counties' needs, in our view, statistically valid waste composition data are important, both for assessing statewide and regional progress and for targeting future efforts. According to OEA, the 1999 waste composition study cost about $100,000, but a greater investment would be required to make a study statistically representative of different regions and types of waste. To evaluate the success or limitations of recycling and waste reduction initiatives, OEA suggested that waste composition studies be done every four to five years. This timeframe would allow programs to mature before measuring their effectiveness.

RECOMMENDATION

The Office of Environmental Assistance should conduct periodic waste composition studies that are statistically reliable for both commercial and residential waste generators in both metropolitan and outstate counties.

WASTE REDUCTION

The Legislature adopted a statewide waste reduction goal in 1994. Using tons of municipal solid waste generated per capita in 1993 as a basis, the goal stated that per capita municipal solid waste generation was to be reduced by 10 percent by the year 2000.[7] However, based on data reported to OEA:

Waste generated per capita has increased steadily since 1993.

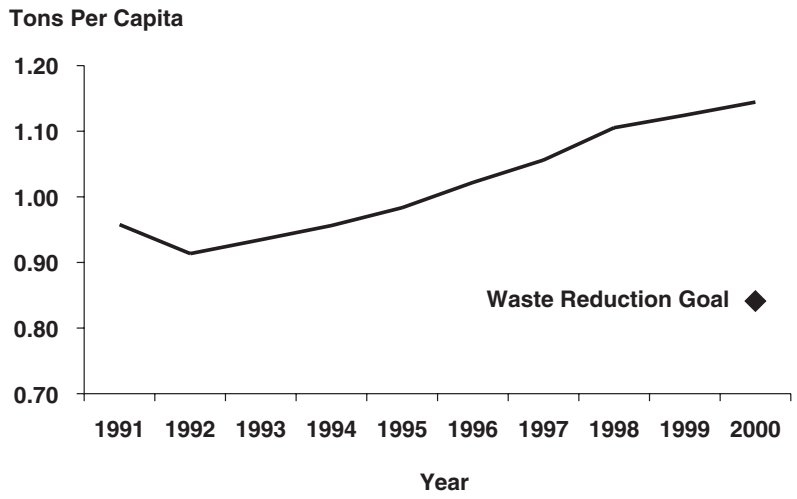
- **Minnesota did not meet the Legislature's goal of reducing per capita waste generation by 10 percent by 2000.**

As shown in Figure 4.2, rather than decreasing, tons of municipal solid waste generated per capita increased substantially between 1993 and 2000, from 0.93 to 1.14 tons per person, a 22 percent increase. Had Minnesota met the Legislature's goal, 2000 waste generation per capita would have been 0.84 tons per person. Since 1993, municipal solid waste generation has increased by about 33 percent while Minnesota's population has grown by about 9 percent. The trend has been similar for the metro and outstate areas. If this trend continues, OEA estimates

6 Solid Waste Management Coordinating Board, *Regional Solid Waste Master Plan, 1998-2017* (St. Paul, 1998), XVI:3.

7 *Minn. Stat.* (2001), §115A.55, subd. 4.

Figure 4.2: Tons of Waste Generated Per Capita, 1991-2000



SOURCE: Office of the Legislative Auditor analysis of Office of Environmental Assistance and State Demographic Center data.

that Minnesotans will generate about 13 million tons of waste by 2020, or about 2.5 tons per person.[8]

Significantly reducing the amount of waste produced will require action at the state and national levels.

The effect of waste reduction efforts is inherently difficult to measure. It is possible that waste generation has not grown as much as it would have absent county and state waste reduction efforts. As a proxy, OEA developed a "source [waste] reduction checklist" for counties to use. Most counties receive the source reduction recycling rate credit for engaging in relevant activities, but few counties have been able to quantify actual amounts of waste reduced.

County staff are engaging in waste reduction efforts, but they believe that Minnesota's waste reduction goal was ambitious and required actions outside counties' sphere of control. Among the counties we visited, most officials said that large reductions in waste produced would require national influences, including an economic downturn (that would result in reduced consumption), a significant change in consumer preferences away from disposable goods, and industrywide efforts to reduce packaging. In fact, OEA has spearheaded statewide waste reduction efforts, including helping citizens reduce the amount of junk mail they receive and facilitating programs in which consumers give old electronic products to the original manufacturers for reuse, recycling, or proper disposal. OEA and the Minnesota Pollution Control Agency use per capita municipal solid waste generation as a performance indicator, but have established a performance goal that the agencies consider more realistic. The agencies' goal is to slow the

8 Minnesota Office of Environmental Assistance, *Solid Waste Policy Report*, 26 and State Demographic Center, 2020 Population Projections; http://www.mnplan.state.mn.us/datanetweb/prj.html; accessed December 7, 2001.

rate of increase in per capita waste generation to zero by 2010. In other words, by 2010, waste generation will keep pace with population growth rather than waste generation growing faster than population.

CONCLUSION

With a steady infusion of state funding and a significant commitment of their own resources, counties have established recycling, household hazardous waste management, and other SCORE programs. Minnesota is recycling 40 percent of the waste it generates and keeping significant amounts of hazardous material out of the waste stream. Using rough measures of comparison, Minnesota is doing a better job than most other states. Still, challenges remain. While some counties continue to make gains, the statewide recycling rate has leveled off. Minnesotans continue to generate increasing amounts of waste and are still throwing away significant amounts of garbage that could be reduced, reused, or recycled.

5 Opportunities and Issues to Consider

SUMMARY

Waste composition data and county self-assessments indicate that opportunities exist to increase recycling and further reduce the amount of waste that Minnesotans discard. The Legislature and counties will need to determine whether to pursue those opportunities and how to fund existing and future recycling and waste reduction efforts. Better information about which efforts are most successful in reducing waste and increasing recycling rates would help policy makers decide future courses of action. We recommend that the Office of Environmental Assistance continue to evaluate specific recycling and waste reduction practices and increase its efforts to synthesize research results and make them readily available to counties, cities, and other interested parties.

As discussed in Chapter 4, Minnesota's recycling rate has stabilized at 40 percent (excluding credits). This compares favorably with recycling rates in other states. Furthermore, a majority of counties have met or exceeded state recycling goals. Still, opportunities exist to abate an even greater amount of waste, though reasonable people differ on whether and how aggressively those opportunities should be pursued. In this chapter, we address the question:

- **What opportunities exist to further reduce and recycle waste, and what are some of the issues to be considered in weighing the alternatives?**

OPPORTUNITIES

Counties could make incremental improvements to SCORE programs in many areas. For example, some residents and businesses do not recycle at all, and many counties do not collect all types of material that could be recycled. Three areas stand out as potentially fruitful for expanding recycling and waste reduction efforts. Based on analyses of discarded waste and interviews with county solid waste administrators and stakeholder groups:

- **Opportunities exist to 1) increase commercial recycling and waste reduction, 2) increase the amount of paper recycled, and 3) compost organic waste.**

Although a majority of recycled material comes from the commercial sector, OEA and most county officials we spoke with said that commercial recycling presented

A key target of opportunity is to increase commercial-sector recycling and waste reduction.

a better opportunity for gains than residential recycling, primarily because counties currently do less outreach with commercial waste generators than residential. However, officials also identified potential barriers to increased commercial recycling. Commercial recycling is more clearly linked to disposal costs and market prices for recycled materials. Officials in the counties we visited said pricing for commercial waste disposal is such that many businesses consider it cheaper to throw some materials away than to recycle or look for reduction and reuse alternatives. While most officials said they could demonstrate that reuse and recycling were cost beneficial in many cases, they had little opportunity to do so in one-on-one interactions with local business owners. Most county officials also said multi-family housing units (which are generally commercial accounts) are a particular problem because recycling is impeded by landlord reluctance to pay for recycling service, space limitations, and high turnover among tenants and building managers.

Studies indicate that about one-third of discarded waste is paper, much of which could be recycled.

About one-third of Minnesota's discarded trash is paper, most of which can be recycled or composted if such services are available. All counties reported providing recycling opportunities for at least one type of paper, but the scope of paper recycling varies among counties, as does the level of effort to educate residents and businesses on reducing paper waste.

Organic material is another target of opportunity. As discussed in Chapter 4, about one-quarter of Minnesota's discarded waste is organic material. Much of this waste, including food waste, non-recyclable mixed paper, wood pallets, and disposable diapers, could be composted. As discussed in Chapter 3, all counties provide opportunities to compost yard waste, but far fewer currently compost or otherwise divert other types of organic waste.

ISSUES TO CONSIDER

Compared to its statutorily defined goals, Minnesota's SCORE efforts to date have been reasonably successful, which makes it difficult to determine where to go from here. Some stakeholders argue that maintaining the status quo is a reasonable alternative given current success and ample cost-efficient, environmentally-sound disposal alternatives. Others, however, argue that Minnesota has not yet reached the ultimate waste reduction goals articulated in the waste management hierarchy. They would choose to invest in new, broadly-scoped efforts, such as organics composting. Still others suggest that state funding for SCORE programs be eliminated. Given the complexity of Minnesota's solid waste management system, there are many issues to be considered in weighing the alternatives. Among them are the following:

- Now that over a decade has passed since SCORE was implemented, does Minnesota's waste management hierarchy reflect current state priorities?
- Should future SCORE efforts continue to emphasize recycling or should emphasis shift to waste reduction, household hazardous waste management, or composting?
- How should recycling and waste reduction efforts be funded?
- Among the many ways counties have chosen to implement SCORE programs, are certain approaches more efficient or effective than others, and can any best practices be implemented more broadly?

Determining the future course of action requires policy decisions and value judgments on both the state and county levels. As a result, we discuss these issues but do not make recommendations on whether to expand recycling and waste reduction efforts, which approaches to pursue, or how to fund them.

Assessing Priorities

The state's waste management priorities will influence decisions regarding the future of SCORE programs.

Counties' SCORE activities are driven by state requirements, but also by a commitment to the waste management priorities articulated in the waste management hierarchy. But, the state's waste management system is different today than it was when the Legislature enacted SCORE. Since 1989, Minnesota has created a well-established recycling system, but has also invested in resource recovery facilities that currently face significant financial challenges. Even with subsidies, tip fees at resource recovery facilities exceed those for landfill disposal, and Minnesota is relying more on landfill disposal, both in and out of state.

As discussed in Chapter 1, there is considerable debate regarding the environmental risks associated with today's landfills and the need to reduce landfill use. Representatives of the waste hauling industry see nothing wrong with relying on landfills as the primary method of garbage disposal. They argue that landfills are environmentally safe and that there is an ample supply of landfill capacity. County officials and other stakeholders, on the other hand, argue that because landfilling presents environmental risks and wastes resources, landfill

disposal should be avoided to the greatest extent possible. Officials from several counties included in our review said that they and their county boards were reluctant to invest in new SCORE efforts, such as adding staff dedicated to commercial waste reduction programs or building organic composting sites, without state action to reaffirm a long-term commitment to the SCORE program.

Indeed, legislative efforts to take a fresh look at Minnesota's waste management policy are underway. The Legislature has convened a Solid Waste Advisory Committee charged with exploring and developing solutions to the state's growing waste stream in a manner that is sustainable and protective of the environment. The group is to report its findings—options that the state might adopt to develop a fully integrated waste management system with, to the extent possible, associated costs and benefits—early in 2002.

Similarly, it may also be a good time to consider priorities among the various activities falling under the SCORE umbrella. Statewide emphasis on recycling coupled with SCORE grant funding helped Minnesota create a recycling infrastructure, particularly for residential recycling. The state and counties from this point forward need to decide whether to maintain recycling efforts at current levels, to pursue paper and commercial recycling opportunities, or to shift emphasis to other areas, such as composting or waste reduction. Funding is a key issue.

Determining Who Should Pay

Stakeholders disagree on the appropriate mix of state, county, and private funding for SCORE programs.

Whether the Legislature chooses to expand the state's efforts to reduce and recycle waste, maintain the state's current level of recycling and waste reduction programs, or eliminate state funding for SCORE, it will need to consider how these services and programs will be funded. One approach is to eliminate state SCORE funding and to pay for recycling and waste reduction programs entirely with user fees, in the same manner that residences and businesses pay for garbage collection. Since waste management is a local responsibility, advocates of this approach argue that it should be paid for with local funds. Counties that use SCORE funding to subsidize residential recycling collection would have to find other ways, such as increased service fees, to fund that service, or they could require cities or waste haulers to collect recycled material and pass the costs along to their customers. Counties that use SCORE funding for activities such as household hazardous waste collection, yard waste programs, and education would have to determine whether to continue to fund those programs through increased service fees or some other means.

Counties, on the other hand, view recycling and waste reduction programs as a state priority. County officials we spoke with argued that a cutback or elimination of state SCORE funding would send a message that the state no longer places a priority on recycling and waste reduction. They noted that SCORE funding has not been adjusted for inflation and, as noted in Chapter 2, most counties already contribute more than the required match. County officials said that recycling has been embraced by much of the public and has become an essential part of waste management. They pointed out that it is politically difficult for county boards to raise service fees and that the state's recycling and waste reduction goals might be

undermined if it stopped providing SCORE funding. In addition, state grant funding gives the state a means to monitor county progress toward state goals and priorities.

OEA emphasized that funding issues should be considered in light of a concept called "product stewardship." Under this concept, all parties involved in the design, production, sale, and use of a product assume responsibility for the full environmental impacts of the product throughout its life cycle. For example, as discussed earlier, OEA is working with some manufacturers of televisions, computers, and carpets to establish used product collection systems operated and funded by the manufacturers. OEA advocates more efforts of this kind.

It is up to the Legislature to determine the appropriate mix of state and local funding to pay for recycling and other waste reduction activities. However, whether through state taxes, county service fees, local utility bills, garbage bills, or cost shifting by manufacturers, the public will ultimately pay.

Identifying Best Practices

Little data exist on factors that distinguish successful recycling and waste reduction practices from less successful ones.

Policymakers would be better able to make decisions regarding the direction of future recycling and waste reduction efforts and funding if they knew more about the effectiveness of the different approaches and programs that have been implemented. However:

- **The complexity of and variation among county SCORE programs and lack of consistent outcome measures make it difficult to assess the relative effectiveness of different approaches.**

As a result, we were unable to determine, other than at a very general level, what factors distinguish successful SCORE efforts from less successful ones.

In evaluating recycling, for example, we used county SCORE reports, demographic data, and recycling rate data to explore factors that might distinguish counties meeting recycling rate goals from those that did not. The analysis identified some demographic factors, such as the population density and the proportion of recycling and garbage generated from the commercial sector, that differentiate the two groups. As shown in Table 5.1:

- Among 50 outstate counties that met the 35 percent recycling goal in 2000, on average, 64 percent of their recycled material came from the commercial, industrial, and institutional sector. In contrast, for the 30 outstate counties that did not meet the recycling goal, only 36 percent of the recycled material came from that sector.

- Population density also differentiates outstate counties that met the recycling goal from those that did not. Counties that met the goal had, on average, 44 people per square mile compared with 30 people per square mile for counties not meeting the goal. Counties that met the goal also had a higher proportion of their population living in communities with curbside recycling collection. This data supports current thinking in the solid waste community that curbside recycling boosts participation.

Table 5.1: Comparison of Counties Meeting and Not Meeting Recycling Goals, 2000

	Metro		Outstate	
Average:	Counties Meeting Goal (*N*=5)	Counties Not Meeting Goal (*N*=2)	Counties Meeting Goal (*N*=50)	Counties Not Meeting Goal (*N*=30)
Base Recycling Rate	47%	39%	41%	21%
Source Reduction and Yard Waste Credits	8%	8%	8%	7%
Recycling Rate With Credits	55%	47%	49%	29%
Pounds Recycled Per Capita	1,077	1,129	921	308
County Population	202,964	813,618	32,719	21,383
County Population Per Square Mile	458	2,643	44	30
Population With Curbside Recycling	96%	89%	59%	41%
Percentage of Households That Are Renter-Occupied	17%	35%	21%	20%
Expenditures Per Capita	$6.19	$8.18	$13.22	$11.28
Percentage of Revenue From County Sources	40%	63%	62%	48%
Percentage of Recycled Material That Is Commercial/ Industrial/Institutional	77%	76%	64%	36%
Percentage of Garbage That Is Commercial/Industrial/ Institutional	51%	48%	44%	37%

SOURCE: Office of the Legislative Auditor analysis of county SCORE report data. County population figures and housing data from the U.S. Census Bureau, *Census 2000 Summary File 1*, http://factfinder.census.gov/home/en/sf1.html; accessed November 9, 2001.

Population density and the extent of commercial recycling activity may influence recycling rates.

- Metro comparisons are difficult because there are only seven metro counties and only two (Hennepin and Ramsey) did not meet the 50 percent recycling goal. One possible reason why Hennepin and Ramsey counties had a more difficult time meeting the recycling goal is the higher prevalence of multi-family housing units in those two counties.[1] We were unable to obtain data on multi-family housing from the 2000 census, but as a proxy, we looked at the percentage of households that were occupied by renters. Hennepin and Ramsey counties have a higher proportion of renter-occupied households than the other five metro counties.[2] The percentage of rental households was not related to outstate counties' likelihood of attaining recycling goals.

1 Multi-family units are generally considered to be commercial entities and, as such, are usually not included in residential curbside recycling programs.

2 Hennepin and Ramsey counties also have a higher population density than the other five metro counties, also suggesting that they have a higher proportion of multi-family residences.

Our analysis points to some general factors that influence recycling rates, such as the extent of curbside recycling, population density, and the proportion of recycled material collected from commercial, industrial, and institutional entities. But, as we noted in Chapter 4, curbside recycling is already prevalent throughout the state and two other factors—population density and the extent of commercial and industrial activity in the county—are outside the control of county solid waste administrators. We did not have sufficient data to determine at a more detailed level which implementation choices, or interaction of choices, are associated with higher recycling participation or volume (e.g., open vs. organized collection, commingled collection vs. highly separated collection, the number of materials collected, the use of pricing incentives or recycling mandates, etc.). It may well be that no single strategy is more effective than others in all cases. Rather, each county has a unique political, social, and geographic environment that might require a unique solution to waste management and SCORE-related issues.

Evaluative studies would help determine whether some recycling collection strategies are more effective than others.

The use of pilot studies that include evaluation components is an established means of identifying best practices. Several such efforts have been completed or are underway around the state, many under the auspices of OEA competitive grant programs (distinct from SCORE grants).[3] For example, OEA awarded a grant for a residential mixed-paper recycling project in three Minnesota cities. In the project, cities collected preintervention participation and recycling tonnage data for pilot and control collection routes. They introduced an education campaign for residents on the pilot route, and collected postpilot data on participation rates, tonnage, and participants' views of the project. While the results are still being analyzed, the project includes an evaluation component that is important in that researchers can measure the success of a specific recycling effort and share the results statewide.

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3 OEA awards Environmental Assistance grants for projects related to waste reduction, pollution prevention, recycling, and environmental education. It also administers a capital assistance grant program to help cities, counties, solid waste management districts, and sanitary districts build solid waste processing facilities.

Other groups are doing similar projects. The Solid Waste Management Coordinating Board member counties are collecting baseline data and studying ways to increase recycling and waste reduction in certain business sectors. Washington County, for instance, is focusing on cardboard recycling by grocery stores. St. Paul's Neighborhood Energy Consortium is evaluating a strategy to increase recycling in multi-family residences. Solid waste administrators we interviewed said they would be willing to try new approaches if they (1) had data demonstrating costs and benefits, and (2) had the resources required for the effort.

Although counties have opportunities to find and share information, it seems fairly clear that the results of pilot studies or other OEA grant projects are not effectively being shared around the state. According to the solid waste administrators we interviewed, counties could use more detailed evaluative or best practices data that can be applied to their unique situations. Stymied by a lack of such information, Washington County, for example, plans to hire a consulting firm to help it understand why some of its cities are recycling more material per capita than others.

Some evaluative data exist, but they are not being shared effectively around the state.

OEA does collect evaluation data and make it available to the public. As a condition of receiving competitive grants, OEA requires recipients to submit a final report that sums up the successes and failures of the project and to share this information in two or three presentations to appropriate audiences. Similarly, capital assistance grant recipients are required to file annual reports that are to include outcome data. OEA makes the results of its grant projects available on its website and in newsletters and shares information in meetings and other forums with county administrators and professional groups. Nonetheless, this evaluative data is not compiled in a readily accessible venue or format. OEA's website, for example, includes a policy and research page, but does not have a link to grant project reports or other evaluation data. According to OEA staff, the agency has not placed a high priority on synthesizing and disseminating research and evaluation results. By not doing so, OEA, in our view, is not fully realizing the benefits that could be gained from grant and other similar projects.

RECOMMENDATION

To assist counties in discerning which strategies would work best for them, the Office of Environmental Assistance should continue to emphasize evaluation of specific recycling and waste reduction practices and increase its efforts to synthesize research results and make them readily available to counties, cities, and other interested parties.

OEA has staff who monitor grant projects, provide technical assistance to counties, and who develop and disseminate education programs, and the agency could use these existing resources to improve the way it gathers and uses data on effective SCORE efforts. For example, OEA could summarize existing research to develop a best practices guide. OEA could also use its grant program to focus on projects related to specific research needs and those that would allow direct measurement of outcomes such as increased recycling or actual waste reduction. Other efforts, such as compiling research or best practice data into a searchable database, would take additional investment.

Summary of Recommendations

- By the end of 2002, the Office of Environmental Assistance should determine how best to streamline waste management data reporting and recommend to the Legislature any needed statutory changes.

- The Office of Environmental Assistance should conduct periodic waste composition studies that are statistically reliable for both commercial and residential waste generators in both metropolitan and outstate counties.

- To assist counties in discerning which strategies would work best for them, the Office of Environmental Assistance should continue to emphasize evaluation of specific recycling and waste reduction practices and increase its efforts to synthesize research results and make them readily available to counties, cities, and other interested parties.

Further Reading

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Minnesota Office of Environmental Assistance

January 8, 2002

Mr. James Nobles
Legislative Auditor
Office of the Legislative Auditor
1st Floor South, Centennial Building
658 Cedar Street
Saint Paul, Minnesota 55155

Dear Mr. Nobles:

This letter is the Office of Environmental Assistance's (OEA) final comments on the program evaluation report on Recycling and Waste Reduction (the SCORE Program) conducted by the Legislative Auditor. Our review of the evaluation indicates that the evaluation is both fair and accurate and will be useful as the state wrestles with how to handle its growing waste stream in a manner that is protective of our environment. We regret that time did not allow you to explore some issues in greater detail.

The Evaluation Report does raise a few issues that we would like to highlight:

1. Household Hazardous Waste Programs. We were surprised to learn the percentage of SCORE funding that is being used by Counties to run Household Hazardous Waste Programs (32% in the Seven County Metro Area and 14% outstate). While the OEA recognizes that these expenditures have been used to reduce the toxicity of the waste stream, these programs often serve to subsidize the private waste disposal industry by removing the more costly items from the waste stream. Perhaps these costs should be transferred to the waste hauling and disposal industries in counties relying on private facilities.
2. Commercial Recycling. The Evaluation indicates that there are still significant recycling gains to be made especially in the area of Commercial establishments and multi-family dwellings. The OEA is committed to researching effective means through which to reach these sectors to increase recycling. To this end, the OEA will be evaluating specific recycling and waste reduction practices and making the results of this research readily available to all of the OEA customers.
3. Regionalization. The Evaluation observes that some counties have made significant gains such as cost savings and improved service delivery by forming partnerships or coalitions with other counties. In our discussion with your staff, they indicated that there was not sufficient data to draw a conclusion that the state's waste system should be consolidated on a regional basis rather than run on a county by county basis. The OEA believes that it is worth exploring whether cost savings and gains might be made in our solid waste system by regionalizing rather than running 87 separate county solid waste systems.

The OEA appreciates the opportunity to have the county SCORE recycling and waste reduction programs examined by an independent body and looks forward to using the results of this report to help counties improve their recycling and waste reduction programs.

Very truly yours,

/s/ Sherry A. Enzler

Sherry A. Enzler
Director

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Evaluation reports can be obtained free of charge from the Legislative Auditor's Office, Program Evaluation Division, Room 140, 658 Cedar Street, Saint Paul, Minnesota 55155, 651/296-4708. Full text versions of recent reports are also available at the OLA web site: http://www.auditor.leg.state.mn.us